American Nuclear Society

Minutes

Standards Board (SB)

November 10, 2015
Wardman Park Marriott, Washington, D.C.

Members Present:

George Flanagan, Standards Board Chair & RARCC Chair, *Oak Ridge National Laboratory*
Steven L. Stamm, Standards Board Vice Chair, *Individual*
Robert J. Budnitz, JCNRM Co-Chair**,** *Lawrence Berkeley National Laboratory*
Robert D. Busch, NCSCC Chair, *University of New Mexico*
Gene Carpenter, LLWRCC Chair, *Nuclear Regulatory Commission*
Donald R. Eggett, FWDCC Chair, *AMEC Foster Wheeler, Inc.*
John Fabian, *American Nuclear Society*
N. Prasad Kadambi, RP3C Chair & ISO & ANSI Liaison, *Individual*
*James O'Brien, NRNFCC Chair, *U.S. Department of Energy*
Mathew M. Panicker, Member at Large, *U.S. Nuclear Regulatory Commission*
William Reuland, Observer, *Individual*
James Riley, NEI Liaison, *Nuclear Energy Institute*
*R. David Sachs, Member at Large, *Individual*
Andrew Smetana, SRACC Chair, *Savannah River National Laboratory*
*Patricia (Pat) A. Schroeder, Standards Board Secretary, *American Nuclear Society*
Andrew Sowder, *Electric Power Research Institute*
Donald J. Spellman, IEEE/NPEC Liaison, *Individual*
William M. Turkowski, Member at Large, *Westinghouse*
*Edward Wallace, Member at Large, *Individual*

**Participated by teleconference for at least a portion of the meeting.*

Voting Members Absent:

James K. August, Member at Large, *Southern Nuclear Operating Company*
Carl A. Mazzola, ESCC Chair, *CB & I Federal Services*
Charles (Chuck) H. Moseley, Member at Large, *Individual*

Guests:

Carol Moyer, *U.S. Nuclear Regulatory Commission*
Eugene S. Grecheck, ANS President, *Individual*
Mark Linn, *Oak Ridge National Laboratory*
George Vayssier, *Nuclear Safety Consultancy - Netherlands*
Kristiina Soderholm, *Fortum, Finland*
*Pamela Nelson, *American Society of Mechanical Engineers*
Sheila Lott, *Los Alamos National Laboratory - Carlsbad*

Next meeting: June 14, 2016, during the ANS annual meeting in New Orleans, LA ,

1. Welcome and introductions

SB Chair George Flanagan welcomed members and introductions were made. A quorum was established.

2. Approval of agenda
The agenda was approved without change.

3. SB Chair Report
A. Report to the Board of Directors (Attachment 1)
Members reviewed the provided informative report to the ANS Board of Directors (BOD). No changes were suggested.

B. Standards Priority Survey Executive Summary (Attachment 2)

1) Review
Chairman George Flanagan stated that the ANS BOD was interested in the results of the survey and would be presenting it to them on Thursday. He reviewed the standards priority survey executive summary. He stated that about 1000 individuals responded which he thought was quite good. The survey had good information. John Fabian explained that nonmember input was solicited through social media. Those taking the survey had the opportunity to skip a response by selecting N/A for topical areas outside the scope of their expertise. Areas suggested by survey takers were incorporated in the list of comments on the summary. Comments that were expressed by several individuals were incorporated on the summary into the conclusion and recommendation. Flanagan stated that he expected that the Standards Board would make assignments to consensus committees (CCs) based on suggestions. Stamm questioned what should be done with the survey information and what should be sent back to the survey takers.

The following motion was made and approved unanimously:

> MOTION:
>
> The survey should be revised to 1) remove the nonmember chart, 2) combine nonmember responses with member responses, and 3) include new charts with the combined information. Then the revised survey summary is to be 1) emailed to member responders accompanied by a cover thank you letter and 2) posted on the public webpage. Members are to be informed about the availability of the survey summary through 1) N&D and 2) LinkedIn. Copies of the survey summary should be available to members at the registration area at the June 2016 meeting. A request should be made to the ANS president to inform members in his plenary speech of the availability of the survey summary at registration.

Action Item 11/2015-01: John Fabian to combine nonmember/member survey responses and create new charts. DUE DATE: November 30, 2015

Action Item 11/2015-02: Pat Schroeder to revise survey summary to include new charts/figures. DUE DATE: December 18, 2015

Action Item 11/2015-03: Pat Schroeder to draft thank you letter to survey responders on behalf of Standards Board Chair George Flanagan. DUE DATE: December 18, 2015

Action Item 11/2015-04: Pat Schroeder to arrange issuance of thank you letter with link to survey results.
DUE DATE: January 15, 2016

Action Item 11/2015-05: Pat Schroeder to post survey summary on public website.
DUE DATE: January 15, 2016

Action Item 11/2015-06: Pat Schroeder to facilitate placement of a notice with the survey summary link in Notes & Deadlines & LinkedIn.
DUE DATE: January 15, 2016

Action Item 11/2015-07: Pat Schroeder was subsequently asked to prepare a brief article on the survey summary for inclusion in ANS News.
DUE DATE: January 15, 2016

2) Assignments

Action Item 11/2015-08: CC chairs are directed to respond to survey responses (priorities and recommendations) within their purview by the end of March 2016.
DUE DATE: March 31, 2016

Action Item 11/2015-09: John Fabian to collect CC chair responses to survey findings/results and create a response document that will be distributed to survey submitters.
DUE DATE: April 15, 2016

C. Standards Board Governance Plan (Objectives List)-APPROVED (Attachment 3)

1) Review

The Standards Board Governance Plan was reviewed. Flanagan explained that the Governance Plan was intended to set short term goals – 12 to 18 months. The suggestion from the survey to create a standards education program was incorporated into the goals. Members discussed what platform to use for an education program; whether that be a webinar or workshop at a national meeting. Schroeder added that the BOD had previously mentioned a standards educational program and would likely be interested. Flanagan suggested that he should pulse the BOD to determine what platform should be used to disseminate information (workshop or presentation). The five recently prepared training presentations for Standards Committee members would be a good source to create a generic standards informative presentation. Members did not feel that a new task group was needed to prepare an educational presentation. The external communications task group was tasked with this action; however, it was recognized that this group did not have a chair at this time.

Action Item 11/2015-10: George Flanagan to get input from the BOD on the platform on a standards educational program.
DUE DATE: November 12, 2015

Action Item 11/2015-11: Pat Schroeder to draft an education program presentation for the External Communications Task Group to finalize.
DUE DATE: December 18, 2015

Action Item 11/2015-12: External Communications Task Group to review standards education presentation and finalize. DUE DATE: January 15, 2016

2) Assignments

The responsibilities for the objectives in the Standards Board Governance Plan were assigned as follows:

Action Item 11/2015-13: George Flanagan, Steven Stamm, RP3C/Prasad Kadambi, Pat Schroeder, Internal Communications Task Group, External Communications Task Group to fulfill the objectives of the Standards Board Objectives Plan as assigned and report progress through Workspace.

Objective	Responsibility
1. Standards Prioritization	George Flanagan
2. ANS PD Sponsorship Program	Internal Communications TG
3. ANS Standards Committee Training Program	George Flanagan, Steven Stamm, and Pat Schroeder
4. Standards Educational Module for Non-Standards Developers	External Communications TG
5. Progress High Priority Standards 1) ANS-30.1 2) ANS-30.2	 1) George Flanagan for Mark Linn 2) George Flanagan for Don Spellman
6. Establish approach for incorporation of risk-informed and performance based principles into ANS standards	RP3C/Prasad Kadambi
7. General	Steven Stamm
DUE DATE: Varying (12-18 month plan)	

Those assigned should insure that the objectives are met. Schroeder was asked to find a place on Workspace to track progress. She thought that ProjectView may be a place to track, but would need to look into this. Alternately, a Workspace specifically for the Governance Plan could be created.

Action Item 11/2015-14: Pat Schroeder to find an appropriate place on Workspace to capture progress on the Standards Board Governance Plan. DUE DATE: December 18, 2015

D. Standards Committee Strategic Plan-UNAPPROVED (Attachment 4)

1) Review

Flanagan recognized that the strategic plan was not approved. He explained that the strategic plan had to be prepared in a short amount of time at the request of the BOD. Flanagan stated that he would be presenting the plan to the BOD at their meeting on Thursday and would summarize SB member comments on the plan.

2) Assignments

Flanagan asked Stamm to lead a team to work on the strategic plan and to choose two additional members. Donald Spellman stated that he'd provide Stamm the materials previously prepared by a past Standards Board member--Caroline McAndrews. Schroeder was asked to get clarification from the planning committee on whether Part B, Part C need to be completed.

Action Item 11/2015-15: Donald Spellman to provide Steve Stamm the strategic plan materials from Caroline McAndrews.
DUE DATE: November 30, 2015

Action Item 11/2015-16: Steve Stamm with two additional members (at his discretion) to incorporate Standards Board member suggestions on the strategic plan and revise accordingly.
DUE DATE: May 1, 2016

E. Appointment of 2016 Standards Service Award Nomination Committee
(Chuck Moseley suggestion – Attachment 5)
Flanagan stated that a suggestion was made by Chuck Moseley that the Standards Board Vice Chair should head the Standards Service Award (SSA) Selection Committee. The following motion was made:

MOTION:

To have the SB Vice Chair head up the SSA Selection Committee.

The motion was approved unanimously installing Steve Stamm as the SSA Selection Committee Chair for the 2016 SSA. Flanagan appointed Smetana and Moseley as members of the 2016 SSA to assist Stamm.

Action Item 11/2015-17: Steve Stamm to chair the 2016 SSA Selection Committee with Andrew Smetana and Chuck Moseley as members and report SSA recommendations to the Standards Board Chair.
DUE DATE: May 1, 2016

4. Secretary/Staff Report (Attachment 6)
The full secretary report is provided as Attachment 6.

A. American National Standards Institute (ANSI) Audit
Details about the ANSI audit can be found in the secretary report provided as Attachment 6.

B. *Nuclear News* Article
Pat Schroeder reported that Steven Stamm submitted an article to *Nuclear News*. The recommendation by the publisher and a couple of editors was to include the article in *ANS News*. They felt that *ANS News* was the appropriate vehicle for committee and staff news. Schroeder believed that they felt that an article on standards would need to be correlated to an industry event to be included in Nuclear News. The article prepared by Stamm was shortened and should be published in the November/December 2015 issue of *ANS News*.

C. NRC Standards Database (Attachment 7)
George Flanagan asked that CC chairs review the NRC database for any missing information on ANS standards and to provide missing/incorrect information to Schroeder by January 31, 2016. Carol Moyer noted that the chairs will need to review two tables – one for “ANS” and the other for “ANSI/ANS.”

Action Item 11/2015-18: CC chairs to review the NRC database and to provide any missing information/incorrect information to Pat Schroeder by January 31, 2016. Chairs will need to review two

tables – one for “ANS” and the other for “ANSI/ANS.” (Database accessible at http://www.nrc.gov/about-nrc/regulatory/standards-dev/consensus.html)
DUE DATE: January 31, 2016

Action Item 11/2015-19: Pat Schroeder combine the information from CC chair and to send missing/incorrect information on ANS standards referenced in the NRC standards database to Carol Moyer at NRC.
DUE DATE: February 15, 2016

Schroeder explained the ANS Collaborate as a tool for ANS leadership – those on ANS Standing Committees and professional divisions -- to communicate and to have a central repository for documents. The ANS Collaborate was connected to ANS membership records and would have a single sign on. The ANS Standards Committee was not expected to use the ANS Collaborate since we use the ANS Standards Committee Workspace which had more features and was specifically tailored to standards development. Schroeder added that the ANS Standards Committee Workspace was not connected to the ANS Collaborate. A notice would be sent to ANS leadership, including SB members, the Monday after the ANS winter meeting directing members to complete their profile in the ANS Collaborate. This notice may be ignored by ANS SB members unless they are members of other ANS Standing Committees and leadership roles in professional divisions which would likely be using the ANS Collaborate in the future for communications.

5. Student Section Associate Membership Report (Attachment 8)
Pat Schroeder reported that 11 student members were placed as associate members within the Standards Committee from the 2014 solicitation to student section members. A survey was issued to all netting in two responses. One of the student associate members stated that the group he was assigned to was not active; this individual was reassigned. The other individual expressed the comment that she was surprised at how slow the process was to develop a standard. Schroeder added that a recent solicitation was just issued to the Young Members Group (YMG) Division and that a presentation would be given to the North American-Young Generation Nuclear (NA-YGN) next Monday to their members encouraging their participation as association members. Schroeder stated that she would be looking to all chairs for their support in placement of these individuals.

6. Areas for Potential New Standards
A. Cybersecurity with Institute of Electrical and Electronics Engineers (IEEE) (Action Item 6/2015-09)
Donald Spellman reported on interest from IEEE to work together developing a standard on cybersecurity. Steven Stamm added that he found a number of individuals interested in supporting development of an ANS cybersecurity standard. However, the individual that agreed to chair the working group has had health issues and may not be able to support. Stamm will be looking for another individual to chair.

Action Item 11/2015-20: Steven Stamm to find a chair for the proposed cybersecurity standard.
DUE DATE: December 31, 2015

Stamm would like to see ANS take the lead on developing a cybersecurity standard with guidance from IEEE. Prasad Kadambi added that 10CFR Chapter 7 is important on implementing defense-in-depth in this area. George Flanagan added that we needed to involve the NRC with this and to make sure that we are cognizant of NRC rulemaking. Flanagan suggested that the role be finalized once a lead for the cybersecurity standard was secured and a direction was determined.

Spellman suggested the following motion:

MOTION:

That ANS agrees to develop a standard on cybersecurity and not a joint standard with IEEE.

The motion passed unanimously. James Riley expressed concern that any standards development organization (SDO) effort needed to be coordinated with the Nuclear Energy Institute (NEI) as well. Members agreed that the cybersecurity working group would need participation from NEI. The proposed standard was assigned to the Large Light Water Reactor Consensus Committee (LLWRCC).

Action Item 11/2015-21: The LLWRCC to approve a PINS for a cybersecurity standard and forward to the Standards Manager. DUE DATE: March 31, 2016

Action Item 11/2015-22: Steven Stamm to provide the list of individuals interested in cybersecurity standards to the LLWRCC Chair; Pat Schroeder to setup the group. DUE DATE: January 30, 2016

B. Severe Accident Analysis to Support Near Term Task Force (NTTF) 3 Recommendations
(as discussed at the November 2012 NRC Meeting—see meeting minutes at ADAMS# ML12356A086 (Attachment 9)
Andrew Smetana stated that the Safety and Radiological and Analyses Consensus Committee (SRACC) discussed developing a standard on severe accident analysis to support NTTF 3 recommendation. They felt that they may need to form a subcommittee specifically to address this need. Smetana wasn't sure if the SRACC has an individual appropriate to chair a standard on this topic. Flanagan suggested that he contact Michael Corradini as he may have a recommendation for subcommittee chair.

Riley questioned whether the need for this guidance still existed and whether it was appropriate for any SDO to initiate, if needed, due to the length of time to develop a standard. He mentioned a crosswalk from the NRC includes guidance for Tier 1, 2, & 3 and offered to provide it to members.

Action Item 11/2015-23: James Riley to provide NRC crosswalk for guidance on NTTF Tier 1, 2, & 3 Recommendations. A DUE DATE: April 1, 2016

Flanagan asked Smetana to do some more research on a severe accident analysis standard and report findings back to the SB at the June 2016 meeting.

Action Item 11/2015-24: Andy Smetana to report research findings on a severe accident analysis standard back to the Standards Board for discussion at the June 2016 meeting DUE DATE: April 1, 2016

C. Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Under the Large Light Water Reactor Consensus Committee (LLWRCC) / Research and Advanced Reactors Consensus Committee (RARCC) (Action Item 11/2014-01) (Attachment 10)
Steven Stamm stated that he was tasked with checking with a few organizations on the need for a standard on ITAAC for future plants. The feedback received was that there was sufficient guidance in general (NEI docs) but what was needed, is some type or way of limiting what has to be looked at

under the ITACC to verify that it has been successfully completed. He added that the feedback he received was that the NRC was going way beyond what was needed. Stamm wasn't sure if there was enough information for a standard at this time but recommended to revisit in a few years. Ed Wallace added that he thought there had recently been a good deal of information. He thought there would be benefit of applying risk-informed insights into the ITACC and suggested revisiting in a year.

Action Item 11/2015-25: Steve Stamm to revisit an ANS ITAAC standard in a year.
DUE DATE: November 2016.

D. NEI Guidance Documents (Attachment 11)
Riley stated that he did not believe that any NEI guidance documents had been published as standards. He added that he thought there could be value in ANS taking over maintenance of NEI guidance document that were no longer being maintained by NEI. Riley was aware of only one NEI document that fit this mold but wasn't sure if it fell under ANS's charter.

Action Item 11/2015-26: Pat Schroeder to provide James Riley the Excel spreadsheet of NEI guidance document with a crosswalk of ANS standards.
DUE DATE: The spreadsheet was sent during the meeting.

Action Item 11/2015-27: Steve Stamm to review the list of NEI guidance documents and provide James
Riley a shortened list of older documents within the scope of ANS which are high priority areas and which NEI is unlikely to have an active task group.
DUE DATE: January 31, 2016

Action Item 11/2015-28: James Riley to identify which if any of the NEI documents on the shortened list do not have active working groups and would benefit from ANS/SDO taking over maintenance.
DUE DATE: March 1, 2016

Action Item 11/2015-29: Steve Stamm/James Riley to identify standards representatives on NEI active working groups.
DUE DATE: February 1, 2016

Action Item 11/2015-30: Steve Stamm, Donald Eggett, and Donald Spellman to participate on a teleconference with James Riley and others at NEI to discuss a mutually beneficial ANS/NEI collaboration.
DUE DATE: February 28, 2016

E. ANS-30.2 Update and Plan (Attachments 12-PPT & PINS)
Spellman reported that the working group had been populated and that a teleconference was being held tomorrow. A Project Initiation Notification Systems (PINS) form has been drafted and will be reviewed by the working group.

F. ANS-30.1 Update and Plan (Attachment 13)
Mark Linn reported the progress of ANS-30.1. The PINS had been approved and submitted to ANSI. The scope includes new reactor designs and excludes existing reactors. The standard is a hierarchy of requirements. Currently they plan to have nine sections. Sections 3, 4, 5, 6 should be drafted by the end of January 2016; Sections 7, 8, 9 should be drafted by the end of May 2016. The goal was to complete a draft by November of 2016.

G. Other Potential Standards (Attachment 14)
With a request from the Biology and Medical Division, Flanagan suggested that Environmental and Siting Consensus Committee Chair Carl Mazzola consider whether there is a place for standards on the application of radiation in medicine within ESCC.

Action Item 11/2015-31: Carl Mazzola to research what standards may be needed related to the application of radiation for medical purposes as suggested by the Biology and Medical Division and if they can be covered within the ANS charter as it excludes standards for medical purposes.
DUE DATE: February 1, 2016

Stamm informed members that a suggestion was made by the Acceleration & Space Division to develop standards for space exploration. The suggestion/question was initiated by John Bess for this division. With civilian exploration, members questioned whether there was a need for voluntary consensus standards. Gene Carpenter added that civilian space exploration does not use nuclear materials as this would require a license. Members felt that these standards would likely be developed by the National Aeronautics and Space Administration, the U.S. Nuclear Regulatory Commission (NRC), or the U.S. Department of Energy (DOE) and that some would be classified. At present, the Standards Committee does not have the right expertise but would have to augment its membership with those from the Aerospace Nuclear Science and Technology Division. Flanagan suggested that more information be gathered before a decision was made how/whether to proceed.

Action Item 11/2015-32: Steven Stamm to talk to John Bess / Aerospace Nuclear Science and Technology Division to get more information about what standards are needed so that a determination could be made whether there is an opportunity for ANS to support.
DUE DATE: December 1, 2015

H. Design of Buried Piping Systems
Members recognized a number of organizations including the American Society of Mechanical Engineers (ASME) and Electrical Power Research Institute (EPRI) that cover standards/guidance for buried piping. Steve Stamm indicated that these other standards covered how such piping would be designed, we still need to provide guidance on what systems/ piping should be protected with leakage collection features such as double walled piping with leakage measurement, piping vaults or manhole access areas. Standard requirements for such features should be considered further.

Action Item: 11/2015-33: Andy Sowder to look into EPRI and ASME active working groups regarding the topic of buried piping and report to the Standard Board if there is any area in which an ANS standard could be developed.
DUE DATE: June 1, 2016

I. High-Priority Standards Plan for each CC
Action Item 11/2015-08 was assigned for CC chairs under discussion of executive survey summary listed above.

7. Training Program Update

A. Training Assignments (Action Item11/2014-13)
(Staff to prepare spreadsheet based on completed matrix and Steven Stamm proposed training matrix) (Attachment 15)
Steven Stamm reminded members that the five training presentations were completed and posted to Workspace. The training matrix will be used to invite members to take the training. Members can

request training waivers from their respective CC chairs if they feel they do not need training in a specific area.

B. Instructors (Action Item 11/2014-14)
The goal is to solicit ten instructors to host live webinars using the presentations. Stamm will be doing the soliciting. Action Item 11/2014-14 addresses solicitation of instructors will remain open.

C. Schedule: Start training in early 2016

D. Workspace Training (Completed and Plan – Attachment 16)
Proposed Workspace training for 2016 is provided in Attachment 16.

8. RP3C Report (Attachment 17)
Prasad Kadambi reported that he attended the SRACC and RARCC meetings and talked about the objective of RP3C; he will be going to other CC meetings as well.

A. RP3C to Address Questions on ANS-30.1, "Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs" (Attachment 18)
(Action 6/2015-20)
Kadambi believed that the process was working. George Flanagan directed that the RP3C subgroup working with ANS-30.1 must make sure to engage right away as the working group was progressing quickly. Ed Wallace confirmed that the subgroup would be holding a teleconference at the end of the month and would be able to meet the needs of the ANS-30.1 Working Group.

Action Item 11/2015-34: Prasad Kadambi and Ed Wallace to have a conference call by 11/30/2015 to develop responses to the ANS-30.1 questions submitted to RP3C and respond to the Working Group. DUE DATE: November 30, 2015

B. RP3C Pilot Program Update
(Action Items 6/2015-21 & 11/2014-20)
Kadambi noted that the pilot program was discussed at the RP3C meeting and that details were being flushed out. The work on standards development of ANS-30.1 can proceed separately. Kadambi stated that he thought a demonstration in draft form will be available before the June 2016 meeting.

Action Item 11/2015-35: Prasad Kadambi to work with Pat Schroeder to develop the ANS Application Platform using the ANS Standards Committee Workspace by the June 2016 meeting. DUE DATE: June 1, 2016

C. RP3C Task Group Report on Creating a Beyond Design Basis Event (BDBE) Standard
(Action Item 11/2014-11)
Kadambi reported that the RP3C discussed developing guidance in the form of a white paper on how ANS standards should address BDBE. He reported that he spoke to SRACC Chair Andy Smetana to develop a BDBE standard using the provided guidance. The RP3C subgroup committed to completing this paper by the end of January and was assigned an action item.

Action Item 11/2015-36: Prasad Kadambi to provide the white paper to the CCs by June 2016. DUE DATE: June 1, 2016

James Riley expressed concern how any SDO would attempt to address BDBE. Robert Budnitz shared this concern. Wallace added that he thought it was timely for advanced reactors. Kadambi reiterated

that the intent of developing the guidance was for new reactors and would be generic/technology neutral.

Kadambi stated that the RP3C created an action item to develop a safety case design to be completed by the end of January 2016. His objective would be to get it into a documented form for review by all CCs by the next meeting – June 2016.

Action Item 11/2015-37: RP3C to provide all CCs the safety case design for review by the June 2016 meeting. DUE DATE: June 1, 2016

D. Other RP3C Issues

Budnitz questioned several points made in the RP3C slides (p. 106 of the meeting materials), mainly that the JCNRM needed oversight from the Standards Board. It was explained that the bullets were prepared to make sure that the ANS Standards Board provides proper direction. Steven Stamm suggested that if the RP3C had specific issues, the RP3C should bring these to the Standards Board. Members felt that JCNRM should not be singled out as other CCs use risk-informed insights too. Budnitz stated that he didn't have a problem with the slides remaining as an attachment to the minutes but wanted clarification.

Action Item 11/2015-38: Prasad Kadambi to revise the RP3C presentation slides to delete all items referring to the JCNRM on page 106 and resubmit to Pat for inclusion in the final minutes. DUE DATE: December 7, 2015.

Action Item 11/2015-39: Prasad Kadambi and Ed Wallace to have a discussion with Robert Budnitz and Rick Grantom about their thoughts on JCNRM oversight. DUE DATE: January 15, 2016

Action Item 11/2015-40: Prasad Kadambi and Ed Wallace to have a discussion with George Flanagan and Steven Stamm regarding the need for JCNRM oversight. DUE DATE: January 15, 2016

9. Standards Issues

A. Future of NRMCC

(Attachments 19: Kadambi Materials; Attachment 20: Budnitz Materials; Attachment 21: Stamm's Qs)

Budnitz introduced ASME JCNRM Co- Vice Chair Pamela Nelson who joined the meeting by phone. He provided members the background on the formation of the NRMCC to help coordinate efforts of the ASME's & ANS's work on PRA standards. Chairs of the NRMCC are appointed by each society's standards board. Budnitz directed members to the paper he prepared with Rick Grantom's input. Their sentiment was that the NRMCC served a very important role, to coordinate ANS and ASME probabilistic risk assessment (PRA) standards to ensure harmonization. He also noted that the NRMCC prepared a strategic plan that was approved in 2009 that included a list of possible standards to be developed. Those of high priority were initiated; some were deemed of little priority or areas that were not ready for standardization. Budnitz added that the NRMCC has become a forum for exchange of information about standards in the risk area, but nothing more. Both the JCNRM Executive Committee and the NRMCC discussed the value of the NRMCC and suggested that a recommendation be made to the two societies' standards board that the committee be dissolved.

Budnitz reviewed the 2009 strategic plan and its goals. He provided his opinion of which ones were currently being fulfilled by the JCNRM and which ones were not needed. Budnitz added that the NRMCC had very little support from other SDOs. He saw nothing in the strategic plan that was needed and not taken care of through other means. Budnitz recognized that a decision would not be made today and agreed that a small committee should be formed to consider this recommendation. He added that the ASME Board on Nuclear Codes and Standards (BNCS) had not taken a position on this issue but would likely make a decision at their next meeting. Nelson added that she believed that the next BNCS meeting would be held in February 2016. George Flanagan stated that the BNCS requested that Grantom prepare a transition plan. Budnitz confirmed that the ANS SB would be provided the plan as well. Steven Stamm stated that he did not see anything in the current NRMCC strategic plan that was not an obvious responsibility of JCNRM, ASME BNCS, or ANS and does not see any need for a transition plan. He requested that Budnitz and Grantom reconsider the need for a transition plan.

Flanagan recognized that ANS NRMCC Co-chair Prasad Kadabmi was not in attendance at the last NRMCC meeting. Had he been, he would have voiced his objection at that time. Kadambi addressed the committee. He stated that he became NRMCC Co-chair in 2014. One of his first actions was to initiate a revision of the strategic plan. He felt all agreed that the strategic plan was outdated and currently served no value. Kadambi stated that he requested that members provide input to revise the strategic plan at two meetings. He was unable to attend the September 2015 NRMCC meeting and had asked that the NRMCC discuss updating the plan. Kadambi explained that he was very surprised to learn that the committee did not discuss how to improve/revise the current strategic plan, but instead voted to disband. His point is that his request to review the plan was ignored. He also questioned the ability of remote participants to follow the conversation. Kadambi stated that he spoke to two members participating remotely and learned that audio was not clear. Furthermore, he expressed concern for ANS as the smaller society in losing the NRMCC as he feels that one of the purposes of the NRMCC was to look out for ANS's interest. Donald Spellman expressed his thought that the NRMCC should provide the step above ANS/ASME CCs to coordinate across the industry (IEEE, human factors, etc.). Kadambi stated that the NRMCC needed to be broadened to include additional stakeholders such as the oil and gas industry, NASA, etc., as a platform for cross-disciplinary, risk management.

Flanagan asked Stamm to co-chair a committee with him, Chuck Moseley, and Bill Turkowski to make a recommendation on the future of the NRMCC. Flanagan suggested that Kadambi document an alternate option for retaining the NRMCC for the ASME BNCS to consider. Nelson added that the BNCS did not discuss the status of the NRMCC at their last meeting. She suggested that Kadambi ask to be put on the agenda for the February 2016 BNCS meeting.

Members discussed both sides of the debate.

Action Item 11/2015-41: George Flanagan, Steven Stamm, Chuck Moseley, and William Turkowski to evaluate the arguments for and against disbanding the NRMCC and provide a recommendation to the Standards Board for discussion at the June 2016 meeting. DUE DATE: March 1, 2016

Action Item 11/2015-42: Prasad Kadambi to request time on the BNCS February 2016 agenda to address the committee on retaining the NRMCC. DUE DATE: December 31, 2015

B. American Society for Testing and Materials (ASTM) Overlap
Not covered.

C. Streamlining Inquiry Process (Attachment 22)

Members were made aware of the requirement that responses to inquiries must be provided to the inquirer within six months and that we did not meet this for the majority of responses. The concern that an inquirer could file a complaint with ANSI was expressed. Pat Schroeder was asked to send the summary paper on providing responses to inquiries to CC chair with a request for their input.

Action Item 11/2015-43: Pat Schroeder to send the summary paper on providing responses to inquiries to CC chair with a request for their input. DUE DATE: December 31, 2015

10. CC Chair Reports

A. Nuclear Criticality Safety Consensus Committee (NCSCC) (Busch)
Written report provided. (Attachment 23)

B. Environmental and Siting Consensus Committee (ESCC) (Mazzola)
Written report provided. (Attachment 24

C. Fuel, Waste, and Decommissioning Consensus Committee (FWDCC) (Eggett)
Written report provided. (Attachment 25)

Donald Eggett stated that ANS-57.3, "Design Requirements for New Fuel Storage Facilities at Light Water Reactor Plants," will have a draft ready by the end of the year; ANS-57.2, "Design Requirements for Light Water Reactor Spent Fuel Storage Facilities at Nuclear Power Plants," should be completed by the middle of 2016. Inquiries on ANS-57.1, "Design Requirements for Light Water Reactor Fuel Handling Systems," and ANS-55.1, "Solid Radioactive Waste Processing System for Light Water Cooled Reactor Plants,"/ANS-55.6, "Liquid Radioactive Waste Processing System for Light Water Reactor Plants," will be acted upon after the meeting. Responses have been drafted and will be issued for ballot shortly. Both responses should be issued by the end of the year. Eggett informed members that the FWDCC reviewed the survey summary and they assigned an action item on developing a standard on decommissioning; a PINS should be issued by the first quarter of 2016. Gene Carpenter invited Eggett to participate in the RIC panel session on decommissioning. Eggett added that Sheila Lott volunteered to serve as maintenance coordinator for the FWDCC.

Action Item 11/2015-44: Donald Eggett to submit response to inquiry on ANS-55.1. DUE: December 31. 2015

Action Item 11/2015-45: Donald Eggett to submit response to inquiry on ANS-57.1. DUE: February 28, 2016

D. Joint Committee on Nuclear Risk Management (JCNRM) (Budnitz)
Written report provided. (Attachment 26)
Robert Budnitz reported that the JCNRM has formed a Chinese International Working Group (IWG) and was in the process of forming a second IWG with Japan. Discussions are on-going with the Canadians. The IWGs will be considered an affiliate of the JCNRM. They will not be voting members of the consensus committee but will report to the consensus committee.

- JCNRM decision on multiple representation (Action 6/2015-08)
  Budnitz addressed the committee regarding multiple representation of committee members on the JCNRM. When the JCNRM was formed, a decision was made for ASME to be the secretary

and to follow their rules on balance of interest which allowed more than one vote from the same company. Recent mergers had created three or four votes from the same company. The JCNRM debated this issue and did not feel this was a problem. When the JCNRM Co-chair for ASME, Rick Grantom, mentioned the multiple representation to the ASME BNCS, they learned that multiple representation was limited by the BNCS but that it was not documented. BNCS requested Grantom to address the JCNRM multiple company issue. Budnitz added that the JCNRM made a commitment not to intentionally add to this issue.

E. Large Light Water Reactor Consensus Committee (LLWRCC) (Carpenter)
The LLWRCC was scheduled to meet the following day. See written report (Attachment 27).

F. Nonreactor Nuclear Facilities Consensus Committee (NRNFCC) (O'Brien)
The NRNFCC was scheduled to meet the following day. See written report provided. (Attachment 28)

- Status of ANS-57.11, "Integrated Safety Assessments for Nonreactor Nuclear Facilities" (title from approved PINS)
  Donald Spellman stated that a preliminary draft of ANS-57.11 was issued to the NRNFCC for review. He said the he expressed concern with a conflict between the title and scope of proposed standard ANS-57.11—whether it was for nonreactor nuclear facilities or for fuel cycle facilities. Schroeder stated that she combined all comments, including Spellman's comment on the conflict, and provided the comments to NRNFCC Chair James O'Brien and ANS-57.11 Working Group Chair Robert Eble. The comments will be discussed at tomorrow's NRNFCC meeting. She expected that this conflict would be resolved during this discussion.

G. Research and Advanced Reactors Consensus Committee (RARCC) (Flanagan)
Flanagan informed members that the RARCC was forming a new working group – ANS-20.X. Additional information about RARCC activities can be found in the report. (Attachment 29)

H. Safety and Radiological Analyses Consensus Committee (SRACC) (Smetana)
Smetana stated that Robert Carter informed him that he would be resigning and that a replacement was needed. See Attachment 30 for the CC report.

11. Action Item Reports

A. Preparation and Evaluation of Redlines as a Possible New Product
(Action Item 6/2015-04: Schroeder Prepare Redline of ANSI/ANS-5.1-2014)
(Action Item 6/2015-05: Busch, Smetana, Turkowski evaluate redline)
NOTE: Redlines evaluated and deemed unusable without tech editing.

B. LLWRCC and RARCC chairs to consider citing regulation 10 CFR 73.54 as an approach to include high-level cybersecurity requirements in its safety criteria standards
(Action Item: 6/2015-10)
This action item was not discussed due to time constraints.

C. Action Items Related to ANS-30.2

- Donald Spellman to review the introduction to the new NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," (Part 0) as a guide which recommends a four-box categorization process as a possible option for ANS-30.2, proposed standard on structures, systems, and component classification. (Action Item: 6/2015-11)

This action item was not discussed due to time constraints.

- CC chairs to provide Spellman the name of a potential working group member for the ANS-30.2 Working Group. (Action Item 6/2015-12)
- Form a working group with representation from multiple SDOs to develop a coordination of related standards activities on component classification.
  (Action Item 6/2014-14)(See Attachment 12 from Agenda Item 6 E)
  The status of forming the ANS-30.2 Working Group was discussed under 6 E. The working group was formed and will be holding a teleconference tomorrow. Action Item 6/2014-14 and 6/2015-12 were completed and can be closed.

D. Steven Stamm and Gene Carpenter to review the NRC white paper on defense in depth (DID) to be issued in August 2015 and formulate a plan for the ANS approach (Action Item 6/2014-08).
Recommendation to change action item to …

Steven Stamm and Gene Carpenter to review the Nuclear Energy Agency (NEA) white paper on DID to be issued in December 2015, formulate a plan for the ANS approach, and reflect this in a revised white paper draft developed under Action Item 6/2014-08.
Due Date: March 1, 2016
(Action Item 6/2015-16)

This action item was not discussed due to time constraints.

E. George Flanagan to inform NEI/James Riley that the conservatism in ANSI/ANS-5.1-2014, "Decay Heat Power in Light Water Reactors," was reduced.
(Action Item: 6/2015-18)
This action item was not discussed due to time constraints.

F. Pat Schroeder and Steven Stamm to create a form to solicit feedback from associate members.
NOTE: See example of completed survey (Attachment 31)
(Action Item 6/2015-19)
The survey was completed and reported under agenda item 5. An example of a completed survey was provided as Attachment 30. This action item can be closed.

G. Prasad Kadambi and Donald Eggett to identify standards in development that show value added to utilities and inform the Special Committee on Utility Engagement to encourage their participation.
(Action Item 6/2015-23)
This action item was not discussed due to time constraints.

H. George Flanagan to ask Ed Wallace to take over for Herbert Massie as External Communications TG Chair.
(Action Item 6/2015-24)
George Flanagan reported that the request was made, but Ed Wallace felt that the chair position should be someone in the D.C. area with proper connections and declined the position. Flanagan will look to solicit another chair for the task group. This action item was closed with a new action item to be opened.

Action Item 11/2015-46: George Flanagan to solicit a chair for the External Communications Task Group. DUE DATE: March 1, 2016

I. Pat Schroeder to provide Carl Mazzola, George Flanagan, and Steven Stamm a copy of the draft ANS/NEI MOU to review before providing to Gene Grecheck.
(Action Item 6/2015-26) (Attachment 32)

NOTE: ANS NEI/MOU provided 6/22/15. Stamm responded 6/26/15 that MOU had little substance. MOU not provided.
This action item was not discussed due to time constraints.

J. George Flanagan to request feedback from ANS leadership on the usefulness of white papers provided to them in advance of the NRC meeting, to confirm that they were sufficient, and if not, to determine how the white papers should be revised to be beneficial.
(Action Item 6/2015-30) (Attachment 33)
NOTE: Inquiry sent.
This action item was not discussed due to time constraints.

K. Pat Schroeder YMG Division and NA-YGN Solicitation
(Action Item 11/2014-7&8)
NOTE: Broadcast issued to YMG Division on 10/28/15 (Attachment 34)**; Presentation to be made to the NA-YGN on 11/16/15**
Details of these two action items were discussed under the Agenda Item 5, the Associate Member Report. With both solicitations made, the action item can be closed.

L. Steven Stamm and Donald Spellman identification of preferred terms and update the foreword in the glossary so that it could be issued for working group use.
(Action Item 11/2014-12)
The glossary was finalized and posted to the ANS public webpage and to the ANS Standards Committee Workspace on November 4, 2015. All members received an announcement that the glossary was updated and available. This action item can be closed.

M. Smetana Actions on Decay Heat Standard (ANS-5.1)
(Action Item 6/2014-01 Replacement of 1971 endorsed draft)
(Action Item 11/2014-15 NRC contact)
(Action Item 11/2014-16 Comparison)
(Action Item 11/2014-17 Article)
This action item was not discussed due to time constraints.

N. Appointment of Maintenance Coordinators
(Action Item 6/2014-03) OPEN for FWDCC, NRNFCC
As reported earlier, the FWDCC appointed Sheila Lott as their maintenance coordinator. This action item remained open for the NRNFCC.

O. ANS Professional Division Representative Program/Turkowski
(Action Item 6/2014-24 for Internal Communications TG) (Attachment 35)
This action item was not discussed due to time constraints.

P. Concurrence of Completed Action Item List (Attachment 36)
Members concurred that the action items reported as completed on Attachment 36 could be closed.

12. Other Committee Reports (from members who have information to report)

A. Standards Board Task Group (TG) (TG List – Attachment 37)
This item was not discussed due to time constraints.

B. Liaison reports (Liaison List – Attachment 38)

This item was not discussed due to time constraints.

13. Other business

President's Report

ANS President Eugene Gene Grecheck addressed the Standards Board. He noted that there had been much talk about ANS being relevant. There also had been talk about cuts at the NRC. Grecheck reported that there would be changes from the White House citing the Nuclear Summit held at the White House on November 6, 2015. Grecheck summarized parts of the summit saying he heard words that sounded to him like talking points from ANS and other organizations, such as, nuclear is necessary and that we cannot allow nuclear power plants to shut down. Much discussion was on new technology and entrepreneurs. Grecheck feels there is a role for ANS to be engaged with entrepreneurs. Also found interesting, much discussion of NRC working with DOE to create the regulatory framework. Flanagan added that he was on the group working to combine NRC and DOE requirements which will be issued as a draft guide for public comments probably in December 2015. Grecheck sees this as an incredible opportunity for ANS standards to become relevant. Reminds him of what he has read about the role professional societies played in founding the industry. Grecheck does not want this opportunity to slip away or be taken over by other organizations. Grecheck sees a change in Federal policy that we can play an important role in.

Grecheck reported on the progress of the Utility Engagement Program. He reported that the program to engage utilities was not successful. He stated that Donald Hoffman was still making an attempt with individual utility CEOs. Although some expressed interested, none have joined. Grecheck added that utilities are reconsidering the cost to support NEI and the Institute of Nuclear Power Operations. He stated that they are clearly in a struggle to remain in existence. Grecheck said that they will continue to work with the utilities as best they can and continue to monitor the industry for changes. In the meantime, we have important work that needs to be done.

Donald Spellman informed Grecheck that the International Atomic Energy Agency (IAEA) attended a standards meeting yesterday and referred to their documents as regulations. He added that IAEA documents are not approved with a balance of interest through the consensus progress. Grecheck thought that IAEA has been very successful in supporting international countries that did not have the regulatory infrastructure.

Members discussed ways to advertise ANS standards internationally. A suggestion was made to work with the ANS International Committee to target member companies.

Action Item 11/2015-47: David Sachs to discuss with the International Committee how to target standards solicitations to international member companies. DUE DATE: February 1, 2016

Steven Stamm informed Grecheck that the standards survey netted a response of 10% of the members which was thought to be very good. He added that the survey would be discussed at the ANS BOD meeting this Thursday.

14. Review of action items from this meeting

Due to time constraints, a decision was made to forgo reviewing the action items. Schroeder suggested that she could send the action items to George Flanagan and Steven Stamm to review and then circulate them to members.

Action Item 11/2015-48: Pat Schroeder to provide George Flanagan and Steven Stamm the list of action items she captured for their review prior to circulating the action items to the members.
DUE DATE: November 11, 2015

15. 2016 Meetings
ANS Annual Meeting, June 12-16, 2016, New Orleans, LA
ANS Winter Meeting, November 6-10, 2016, Las Vegas, NV

16. Adjournment
The meeting was adjourned.

Report of Action Items

(Many action items were not discussed at 11/20/15 meeting due to lack of time.)

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2015-01	John Fabian to combine nonmember/member survey responses and create new charts. DUE DATE: November 30, 2015	John Fabian	OPEN
11/2015-02	Pat Schroeder to revise survey summary to include new charts/figures. DUE DATE: December 18, 2015	Pat Schroeder	OPEN
11/2015-03	Pat Schroeder to draft thank you letter to survey responders on behalf of Standards Board Chair George Flanagan. DUE DATE: December 18, 2015	Pat Schroeder	OPEN
11/2015-04	Pat Schroeder to arrange issuance of thank you letter with link to survey results. DUE DATE: January 15, 2016	Pat Schroeder	OPEN
11/2015-05	Pat Schroeder to post survey summary on public website. DUE DATE: January 15, 2016	Pat Schroeder	OPEN
11/2015-06	Pat Schroeder to facilitate placement of a notice with the survey summary link in Notes & Deadlines & LinkedIn. DUE DATE: January 15, 2016	Pat Schroeder	OPEN
11/2015-07	Pat Schroeder to prepare a brief article on the survey summary for inclusion in ANS News. DUE DATE: January 15, 2016	Pat Schroeder	OPEN
11/2015-08	CC chairs are directed to respond to survey responses (priorities and recommendations) within their purview by the end of March 2016. DUE DATE: March 31, 2016	CC chairs	OPEN
11/2015-09	John Fabian to collect CC chair responses to survey findings/results and create a response document that will be distributed to survey submitters. DUE DATE: April 15, 2016	John Fabian	OPEN
11/2015-10	George Flanagan to get input from the BOD on the platform for a standards educational program. DUE DATE: November 12, 2015	George Flanagan	OPEN
11/2015-11	Pat Schroeder to draft an education program presentation for the External Communications Task Group to finalize. DUE DATE: December 18, 2015	Pat Schroeder	OPEN
11/2015-12	External Communications Task Group (ECTG) to review standards education presentation and finalize. DUE DATE: January 15, 2016	ECTG	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2015-13	Action Item 11/2015-13: George Flanagan, Steven Stamm, RP3C/Prasad Kadambi, Pat Schroeder, Internal Communications Task Group (ICTG), External Communications Task Group (ECTG) to fulfill the objectives of the Standards Board Objectives Plan as assigned and report progress through Workspace. DUE DATE: Varying (12-18 month plan)	George Flanagan, Steven Stamm, RP3C/Prasad Kadambi, Pat Schroeder, ICTG, ECTG	OPEN

Objective	Responsibility
1. Standards Prioritization	George Flanagan
2. ANS PD Sponsorship Program	Internal Communications TG
3. ANS Standards Committee Training Program	George Flanagan, Steven Stamm, and Pat Schroeder
4. Standards Educational Module for Non-Standards Developers	External Communications TG
5. Progress High Priority Standards 1) ANS-30.1 2) ANS-30.2	1) George Flanagan for Mark Linn 2) George Flanagan for Don Spellman
6. Establish approach for incorporation of risk-informed and performance based principles into ANS standards	RP3C/Prasad Kadambi
7. General	Steven Stamm

11/2015-14	Pat Schroeder to find an appropriate place on Workspace to capture progress on the Standards Board Governance Plan. DUE DATE: December 18, 2015	Pat Schroeder	OPEN
11/2015-15	Donald Spellman to provide Steven Stamm the strategic plan materials from Caroline McAndrews. DUE DATE: November 30, 2015	Donald Spellman	OPEN
11/2015-16	Steven Stamm with two additional members (at his discretion) to incorporate Standards Board member suggestions on the strategic plan and revise accordingly. DUE DATE: May 1, 2016	Steven Stamm	OPEN
11/2015-17	Steven Stamm to chair the 2016 SSA Selection Committee with Andrew Smetana and Chuck Moseley as members and report SSA recommendations to the Standards Board Chair. DUE DATE: May 1, 2016	Steven Stamm	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2015-18	CC chairs to review the NRC database and to provide any missing information/incorrect information to Pat Schroeder by January 31, 2016. Chairs will need to review two tables – one for "ANS" and the other for "ANSI/ANS." (Database accessible at http://www.nrc.gov/about-nrc/regulatory/standards-dev/consensus.html) DUE DATE: January 31, 2016	CC Chairs	OPEN
11/2015-19	Pat Schroeder combine the information from CC chair and to send missing/incorrect information on ANS standards referenced in the NRC standards database to Carol Moyer at NRC. DUE DATE: February 15, 2016	Pat Schroeder	OPEN
11/2015-20	Action Item 11/2015-20: Steven Stamm to find a chair for the proposed cybersecurity standard. DUE DATE: December 31, 2015	Steven Stamm	OPEN
11/2015-21	The LLWRCC to approve a PINS for a cybersecurity standard and forward to the Standards Manager. DUE DATE: March 31, 2016	Gene Carpenter	OPEN
11/2015-22	Steven Stamm to provide the list of individuals interested in cybersecurity standards to the LLWRCC Chair; Pat Schroeder to setup the group. DUE DATE: January 30, 2016	Steven Stamm	OPEN
11/2015-23	James Riley to provide NRC crosswalk for guidance on NTTF Tier 1, 2, & 3 Recommendations. A DUE DATE: April 1, 2016	James Riley	OPEN
11/2015-24	Andrew Smetana to report research findings on a severe accident analysis standard back to the Standards Board for discussion at the June 2016 meeting DUE DATE: April 1, 2016	Andrew Smetana	OPEN
11/2015-25	Steven Stamm to revisit an ANS ITAAC standard in a year. DUE DATE: November 2016.	Steven Stamm	OPEN
11/2015-26	Pat Schroeder to provide James Riley the Excel spreadsheet of NEI guidance document with a crosswalk of ANS standards. DUE DATE: The spreadsheet was sent during the meeting.	James Riley	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2015-27	Steven Stamm to review the list of NEI guidance documents and provide James Riley a shortened list of older documents within the scope of ANS which are high priority areas and which NEI is unlikely to have an active task group. DUE DATE: January 31, 2016	Steven Stamm	OPEN
11/2015-28	James Riley to identify which if any of the NEI documents on the shortened list do not have active working groups and would benefit from ANS/SDO taking over maintenance. DUE DATE: March 1, 2016	James Riley	OPEN
11/2015-29	Steven Stamm/James Riley to identify standards representatives on NEI active working groups. DUE DATE: February 1, 2016	Steven Stamm James Riley	OPEN
11/2015-30	Steve Stamm, Donald Eggett, and Donald Spellman to participate on a teleconference with James Riley and others at NEI to discuss a mutually beneficial ANS/NEI collaboration. DUE DATE: February 28, 2016	Steven Stamm, Donald Eggett, Donald Spellman, James Riley	OPEN
11/2015-31	Carl Mazzola to research what standards may be needed related to the application of radiation for medical purposes as suggested by the Biology and Medical Division and if they can be covered within the ANS charter as it excludes standards for medical purposes. DUE DATE: February 1, 2016	Carl Mazzola	OPEN
11/2015-32	Steven Stamm to talk to John Bess / Aerospace Nuclear Science and Technology Division to get more information about what standards are needed so that a determination could be made whether there is an opportunity for ANS to support. DUE DATE: December 1, 2015	Steven Stamm	OPEN
11/2015-33	Andrew Sowder to look into EPRI and ASME active working groups regarding the topic of buried piping and report to the Standard Board if there is any area in which an ANS standard could be developed. DUE DATE: June 1, 2016	Andrew Sowder	OPEN
11/2015-34	Prasad Kadambi and Ed Wallace to have a conference call by 11/30/2015 to develop responses to the ANS-30.1 questions submitted to RP3C and respond to the Working Group. DUE DATE: November 30, 2015	Prasad Kadambi, Ed Wallace	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2015-35	Prasad Kadambi to work with Pat Schroeder to develop the ANS Application Platform using the ANS Standards Committee Workspace by the June 2016 meeting. DUE DATE: June 1, 2016	Prasad Kadambi Pat Schroeder	OPEN
11/2015-36	Prasad Kadambi to provide the white paper to the CCs by June 2016. (Guidance how ANS standards should address BDBE.) DUE DATE: June 1, 2016	Prasad Kadambi	OPEN
11/2015-37	RP3C to provide all CCs the safety case design for review by the June 2016 meeting. DUE DATE: June 1, 2016	Prasad Kadambi/ RP3C	OPEN
11/2015-38	Prasad Kadambi to revise the RP3C presentation slides to delete all items referring to the JCNRM on page 106 and resubmit to Pat for inclusion in the final minutes. DUE DATE: December 7, 2015.	Prasad Kadambi	OPEN
11/2015-39	Prasad Kadambi and Ed Wallace to have a discussion with Robert Budnitz and Rick Grantom about their thoughts on JCNRM oversight. DUE DATE: January 15, 2016	Prasad Kadambi, Ed Wallace, Robert Budnitz	OPEN
11/2015-40	Prasad Kadambi and Ed Wallace to have a discussion with George Flanagan and Steven Stamm regarding the need for JCNRM oversight. DUE DATE: January 15, 2016	Prasad Kadambi, Ed Wallace, George Flanagan, Steven Stamm	OPEN
11/2015-41	George Flanagan, Steven Stamm, Chuck Moseley, and William Turkowski to evaluate the arguments for and against disbanding the NRMCC and provide a recommendation to the Standards Board for discussion at the June 2016 meeting. DUE DATE: March 1, 2016	George Flanagan, Steven Stamm, Chuck Moseley, William Turkowski	OPEN
11/2015-42	Prasad Kadambi to request time on the BNCS February 2016 agenda to address the committee on retaining the NRMCC. DUE DATE: December 31, 2015	Prasad Kadambi	OPEN
11/2015-43	Pat Schroeder to send the summary paper on providing responses to inquiries to CC chair with a request for their input. DUE DATE: December 31, 2015	Pat Schroeder	OPEN
11/2015-44	Donald Eggett to submit response to inquiry on ANS-55.1. DUE: December 31. 2015	Donald Eggett	OPEN
11/2015-45	Donald Eggett to submit response to inquiry on ANS-57.1. DUE: February 28, 2016	Donald Eggett	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2015-46	George Flanagan to solicit a chair for the External Communications Task Group. DUE DATE: March 1, 2016	George Flanagan	OPEN
11/2015-47	David Sachs to discuss with the International Committee how to target standards solicitations to international member companies. DUE DATE: February 1, 2016	David Sachs	OPEN
11/2015-48	Pat Schroeder to provide George Flanagan and Steven Stamm the list of action items she captured for their review prior to circulating the action items to the members. DUE DATE: November 11, 2015	Pat Schroeder, George Flanagan, Steven Stamm	
6/2015-01	Pat Schroeder to prepare a summary of responses to the priority survey and provide to the SB and the ANS Executive Committee.	Pat Schroeder	CLOSED
6/2015-02	Pat Schroeder to issue a ballot for approval of the BRC changes to Rule 7.1.4(n) on the SB membership.	Pat Schroeder	CLOSED
6/2015-03	Action Item 6/2015-03: George Flanagan (Policy Task Group) to develop the ANS Standards Committee Strategic Plan and provide to the ANS Executive Committee.	George Flanagan/Policy Task Group	CLOSED
6/2015-04	Pat Schroeder to prepare a redline comparison of ANSI/ANS-5.1-2005 to ANSI/ANS-5.1-2014.	Pat Schroeder	CLOSED
6/2015-05	Robert Busch, Andrew Smetana, and William Turkowski to review and evaluate the redline of ANSI/ANS-5.1-2014.	Robert Busch, Andrew Smetana, William Turkowski	CLOSED
6/2015-06	Pat Schroeder to provide instruction to consensus committee chairs emphasizing the importance of identifying related standards and other industry efforts on the PINS forms.	Pat Schroeder	CLOSED
6/2015-07	Pat Schroeder to confirm with Donald Eggett if the recent merger of his company changes his balance of interest classification from “consultant” to “architect-engineer.”	Pat Schroeder	CLOSED
6/2015-08	Robert Budnitz to report back to the SB the decision made by JCNRM on multiple representation.	Robert Budnitz	CLOSED
6/2015-09	Donald Spellman to check with IEEE/NPEC about the possibility of developing a joint standard on cybersecurity. Due Date: September 1, 2015	Donald Spellman	OPEN
6/2015-10	The LLWRCC and RARCC chairs to consider citing regulation 10 CFR 73.54 as an approach to include high-level cybersecurity requirements in its safety criteria standards. Due Date: September 1, 2015	LLWRCC Chair, RARCC Chair	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2015-11	Donald Spellman to review the introduction to the new NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition,” (Part 0) as a guide which recommends a four-box categorization process as a possible option for ANS-30.2--proposed standard on SSC classification. Due Date: August 1, 2015	Donald Spellman	OPEN
6/2015-12	Consensus committee chairs to provide Donald Spellman the name of a potential working group member for the ANS-30.2 Working Group.	CC Chairs	CLOSED
6/2015-13	Pat Schroeder to request presentations of the special session on new reactor concepts and licensing and provide to SB members.	Pat Schroeder	CLOSED
6/2015-14	Consensus committee chairs to complete the Standards Training Package Application Matrix and provide back to Steven Stamm and Pat Schroeder.	CC Chairs	CLOSED
6/2015-15	Pat Schroeder to establish a schedule of Workspace live demos with one a month.	Pat Schroeder	CLOSED
6/2015-16	Steven Stamm and Gene Carpenter to review the NRC white paper on DID to be issued in August 2015 and formulate a plan for the ANS approach (Action Item 6/2014-08). Due Date: March 1, 2016	Steven Stamm, Gene Carpenter	OPEN
6/2015-17	William Turkowski to check with the Westinghouse licensing department for their input on whether there is value in a standard for new designs that would provide an ITAAC writing template or where in the ITAAC process would benefit from standardization. Additionally, input to be sought from NEI. Due Date: September 1, 2015	William Turkowski	CLOSED
6/2015-18	George Flanagan to inform NEI/James Riley that the conservatism in ANSI/ANS-5.1-2014, “Decay Heat Power in Light Water Reactors,” was reduced. Due Date: August 1, 2015	George Flanagan	OPEN
6/2015-19	Pat Schroeder and Steven Stamm to create a form to solicit feedback from associate members.	Pat Schroeder, Steven Stamm	CLOSED
6/2015-20	RP3C to address ANS-30.1 WGC Mark Linn’s questions. Due Date: November 1, 2015	Prasad Kadambi/ RP3C	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2015-21	RP3C to pilot the Standards Application Platform with ANS-30.1, "Risk-Informed and Performance-Based Nuclear Power Plant Design Process." Due Date: November 1, 2015	Prasad Kadambi/ RP3C	OPEN
6/2015-22	Carl Mazzola to provide Donald Eggett contact information for Ben Cross as a possible candidate to lead ANS-57.9, "Design Criteria for an Independent Spent Fuel Storage Installation (Dry Type)."	Carl Mazzola	CLOSED
6/2015-23	Prasad Kadambi and Donald Eggett to identify standards in development that show value added to utilities and inform the Special Committee on Utility Engagement to encourage their participation. Due Date: September 1, 2015	Prasad Kadambi, Donald Eggett	OPEN
6/2015-24	George Flanagan to ask Ed Wallace to take over for Herbert Massie as External TG Chair.	George Flanagan	CLOSED
6/2015-25	William Turkowski to check with Westinghouse to see if they might be able to appoint an individual to replace George Flanagan as ISO/TC 85/SC 6 Chair.	William Turkowski	CLOSED
6/2015-26	Pat Schroeder to provide Carl Mazzola, George Flanagan, and Steven Stamm a copy of the draft ANS/NEI MOU to review before providing to Gene Grecheck. Due Date: June 30, 2015	Pat Schroeder	OPEN
6/2015-27	Pat Schroeder to send Steven Stamm and George Flanagan a copy of the letter sent to Gene Grecheck with standards-related offerings for utilities to review and updated if necessary before providing back to Gene Grecheck.	Pat Schroeder	CLOSED
6/2015-28	Steven Stamm and George Flanagan to review the letter sent to Gene Grecheck and review the standards-related offerings for utilities and update if necessary before providing back to Gene Grecheck.	Steven Stamm, George Flanagan	CLOSED
6/2015-29	Pat Schroeder to forward members a link to the NESCC Database of Standards Referenced in Regulatory Documents.	Pat Schroeder	CLOSED

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2015-30	George Flanagan to request feedback from ANS leadership on the usefulness of white papers provided to them in advance of the NRC meeting, to confirm that they were sufficient, and if not, to determine how the white papers should be revised to be beneficial. Due Date: August 2015	George Flanagan	OPEN
6/2015-31	Pat Schroeder to distribute the action items in draft format as soon as possible.	Pat Schroeder	CLOSED
11/2014-01	William Reuland to consider developing a new standard on ITAAC within the LLWRCC. (Reassignment of Action Item 6/2014-11). Due Date: November 2015	William Reuland	OPEN
11/2014-04	Consensus committee chairs to issue letters of recognition to subcommittee chairs and their managers as appropriate. Due Date: As needed	CC Chairs	On-going
11/2014-07	Pat Schroeder to send a broadcast to student section members on getting involved in standards every other year – next time to be July 2016. Due Date: July 31, 2016	Pat Schroeder	On-going (Next broadcast 7/31/16)
11/2014-08	Pat Schroeder to create a similar solicitation broadcast to the YMG and NA-YGN. Due Date: July 31, 2016	Pat Schroeder	On-going (Next broadcast 7/31/17)
11/2014-11	Prasad Kadambi and Ed Wallace to create a task group within the RP3C to address the issue of creating a BDBE standard and report back to the SB. The task group should use Steven Stamm's draft white paper (Attachment 6 of 11/2014 Minutes) as reference. This action item replaces Action Item 6/2014-13. Due Date: November 1, 2015	Prasad Kadambi, Ed Wallace	OPEN
11/2014-12	Steven Stamm and Donald Spellman to complete the identification of preferred terms and update the foreword in the glossary so that it could be issued for working group use.	Steven Stamm, Donald Spellman	CLOSED
11/2014-13	Steven Stamm and Pat Schroeder to issue a request to consensus committee chairs to identify which webtraining sessions each of the volunteers under that consensus committee should be invited to attend.	Steven Stamm, Pat Schroeder	CLOSED
11/2014-14	Standards Board members let Steven Stamm and Pat Schroeder know if they can serve as primary instructor or backup instructor for webtraining sessions. Due Date: September 1, 2015	Standards Board Members	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2014-15	Andrew Smetana to work with Gene Carpenter to determine the appropriate contact at NRC to discuss the possibility of updating the endorsement of the 1971 decay heat standard (ANS-5.1) in 10CFR50, Appendix K, to the recently approved version – ANSI/ANS-5.1-2014. [Follow up action item to 6/2014-01] Due Date: November 1, 2015	Andrew Smetena	OPEN
11/2014-16	Andrew Smetana to provide a comparison between the ANS-5.1 1971 draft and ANSI/ANS-5.1-2014 to the SB. Due Date: November 1, 2015	Andrew Smetana	OPEN
11/2014-17	Andrew Smetana to ask ANS-5.1 Working Group Chair Ian Gauld to prepare an article about the new version of ANSI/ANS-5.1-2014 for *Nuclear News* or other suitable ANS publication (Notes & Deadlines, *ANS News, Nuclear Standards News*) Due Date: November 1, 2015	Andrew Smetana	OPEN
11/2014-18	Consensus committee chairs to work with subcommittee chairs to prepare a short article about any standard in need of subject matter experts to be maintained or initiated. The article should include details of why the standard needs to be maintained (revision/reaffirmation) or initiated and include its importance and benefit to the industry, expertise needed, etc. Articles to be provided to Pat Schroeder. Due Date: as needed	Consensus committee chairs	On-going
11/2014-19	Pat Schroeder to work with the ANS Publication Information Department, Nuclear News staff, and ANS News staff to disseminate articles on ANS standards needing volunteer support from subcommittee chairs in appropriate ANS media/publications. Due Date: as needed	Pat Schroeder	On-going
6/2014-01	Andrew Smetana to start a dialog with the NRC to effect the rulemaking process to replace the reference to the 1971 decay heat standard (ANS-5.1) in 10CFR50, Appendix K, with a reference to the most current standard. *(Note: This should include the discussion of whether the NRC prefers to use the 2005 version or the pending revision.)* DUE DATE: November 1, 2015	Andrew Smetana	OPEN

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2014-03	Each consensus committee (CC) chair to appoint a maintenance coordinator to be responsible for tracking maintenance needs of each CC. DUE DATE: November 1, 2015	CC Chairs	OPEN for NRNFCC NCSCC = Larry Wetzel JCNRM = Paul Amico ESCC = Leah Parks FWDCC = Sheila Lott LLWRCC = Tim Meneely RARCC = Timothy Newton/Bruce Bevard SRA = Keith Morrell
6/2014-08	Steven Stamm (with Gene Carpenter's support) to review SB comments on Donald Eggett's DID white paper and revise accordingly.	Steven Stamm	CLOSED Superseded by action item 6/2015-16.
6/2014-14	Donald Spellman to form a working group with representation from multiple SDOs to develop a coordination of related standards activities on component classification.	Donald Spellman	CLOSED
6/2014-15	Steven Stamm to prepare guidance on what goes into a standard and what goes into an appendix. Guidance may consider the 6 points discussed at the 6/17/14 SB meeting.	Steven Stamm	CLOSED
6/2014-22	Internal Communications TG to prepare 5 training presentations and provide for member comments. Presentations include 1) overview of nuclear related standards, plus additional slides that address international aspects, and 2) ANS standards organization and staffing, 3) the standards development process, 4) Standards Committee policies and procedures, and 5) CC policies and procedures	Internal Communications TG	CLOSED
6/2014-24	Internal Communications TG to review the old NFSC division liaisons list and reinstitute the ANS professional division representative program. (Old NFSC professional division liaison list to be provided to ICTG by Pat Schroeder.) DUE DATE: November 1, 2015	Internal Communications TG	OPEN
11/2012-04	Donald Spellman to begin development of one or more grants for ANS support. Projects to be considered for a grant proposal include ANS-2.8 (Flood Hazards), ANS-3.13 (Reliability Assurance Program), ANS-57.11 (Fuel Cycle Facilities), and advanced reactors.	Donald Spellman	On Hold (grant proposals not currently being accepted)

ATTACHMENT 1

2015 Standards Committee Informative Report to the ANS Board of Directors

from Standards Board Chair George F. Flanagan

A standards priority survey was issued to ANS members in July and made available to nonmembers on the ANS home page and through social media. About 1000 individuals completed the survey providing valuable input to set priorities for the program of work. Survey feedback showed that improvement in communication with ANS members and the user community and improvement in maintaining current standards were needed. High-priority standards in development were identified and recommended to be expedited. Topical areas shown to be of interest to the industry will be explored for standardization. Input from the survey and directives from the Standards Board were used to prepare a Governance Plan with measurable goals for the next 12-18 months and a five year strategic plan. The plan recognizes five strategic goals of prioritization of industry needs, high quality standards, improve production and efficiency, outreach, and improve industry representation and sustainability of working groups, subcommittees, and consensus committees.

The Standards Board Internal Communications Task Group completed a series of presentations for use in a training program for Standards Committee members. Presentations provide members general information about standards, the Standards Committee organizational structure, the standards development process, and governing documents. The intent is to provide members a good foundation to ensure development of standards consistent with policies and procedures producing a consistently better standards product. Instructors will be solicited and trainings will be scheduled in 2016.

The Risk-informed, Performance-based Principles and Policy Committee launched a pilot program using proposed new standard ANS-30.1, 201x, “Integration of Risk-Informed, Performance-Based Principles and Methods into Nuclear Safety Design for Nuclear Power Plants,” to establish a consistent method for incorporating risk-informed and performance-based methods in ANS standards.

The implementation of the ANS Standards Committee Workspace was successfully completed in 2015. This web-based collaborative tool was initiated in early 2014. Workspaces have been created for all active standards committees. At present, the ANS Standards Committee Workspace includes 161 active groups, 565 active participants, and 1370 documents. The site has been used to issue 162 ballots, create 101 calendar events, and track 197 action items. Additional workspaces and users accounts continue to be added when working groups are reformed or new working groups are created. A series of Workspace training webinars were initiated by ANS staff to insure that members receive instruction on how to use Workspace for balloting and comments; more detailed training webinars were offered to standards committee chairs responsible for the management of a workspace. The intent is to repeat the training on a regular basis to insure that all members have opportunity for instruction and utilize the ANS Standards Committee Workspace to the fullest.

The Standards Board certified balance of interest for all eight consensus committees during the June 2015 meeting. All eight consensus committees comply with the requirements of the American National Standards Institute (ANSI) that no single interest category constitutes more than one-third of the membership. Additionally, each consensus committee includes the appropriate regulatory representation. C.E. (Gene) Carpenter Jr. was elected chair of the Large Light Water Reactor Consensus Committee (LLWRCC) in July of 2015. Carpenter replaced William B. Reuland who was appointed the LLWRCC chair in 2013 when the committee was formed. Reuland was elected vice chair and will continue to support the LLWRCC to insure a smooth transition.

With the success of the 2014 solicitation to ANS Student Section members, efforts are underway for a similar solicitation with the ANS Young Member Group (YMG) Division and the North American-Young Generation in Nuclear. The ANS Standards Committee Associate Member Program was approved by the Standards Board in November of 2007 at the request of the YMG. The program allows young professionals an opportunity to participate in standards development without the traditional amount of experience and without the requirement to physically attend meetings. Young professionals gain significant subject matter knowledge while the ANS Standards Committee looks to these members to sustain the ANS standards program.

Two standards committee members were selected for the 2015 Standards Service Award. Jerry E. Hicks was selected for his contributions over the last 30 years including demonstrated leadership and participation on several standards committees leading to the development of many ANS nuclear criticality safety standards that provide good engineering practice while balancing user need and cost for the nuclear industry. Donald J. Wakefield was also selected for the award in recognition of leadership as chair of the Low Power and Shutdown PRA Working Group from 2006 until 2014, perseverance in addressing a number of complex quantitative vs. qualitative risk management issues, and resolving over 1000 comments that resulted in a significant standards product.

The American National Standards Institute audited the ANS standards program in August of this year. The audit report recognized a well-organized program and gave high marks for openness, balance, collaboration with other standards development organizations, and international participation. The auditor cited two sections in our accredited procedures that require change to comply with the ANSI Essential Requirements along with several suggestions for improvement. All changes will be made. The next audit is anticipated for 2020.

For the seventh year, ANS standards were applied in a University of Pittsburg graduate course titled “Case Studies in Nuclear Codes and Standards” as part of the school’s Nuclear Engineering Program. The course addresses 17 major standards. Standards from the American Society of Mechanical (ASME), ASTM International, and the Institute of Electrical and Electronics Engineers were also part of the curriculum.

ANS/ASME-58.22-2014, “Requirements for Low Power and Shutdown Probabilistic Risk Assessment,” was approved at the end of 2014 and published in March of 2015 as a trial use and pilot application standard. This standard was developed by a joint committee of the ANS and the ASME. The standard on low power and shut is the third trial use standard jointly issued in the last two years.

The ANS Standards Committee issued responses to five inquiries on ANS standards. Responses to inquiries are published in *Nuclear News, Nuclear Standards News,* and are available on the ANS Website. Responses to inquiry were provided on the following standards:

- ANSI/ANS-8.3-1997 (R2012), “Criticality Accident Alarm System”
- ANSI/ANS-15.4-2007, “Selection and Training of Personnel for Research Reactors”
- ANSI/ANS-56.8-1987/1994, “Containment System Leakage Testing Requirements”
- ANSI/ANS-56.8-1994, “Containment System Leakage Testing Requirements”
- ANSI/ANS-58.2-1988 (W1998), “Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture”

The ANS has 78 current standards of which 17 are considered delinquent for lack of maintenance within five years of ANSI approval or reaffirmation. A good many of these standards are delinquent due to a lack of volunteer resources. An additional 10 standards have also exceeded five years since being approved by ANSI but are currently being revised and have submitted Project Initiation Notification System (PINS) forms to ANSI

recognizing that maintenance is being performed. The opportunity to utilizing expertise from members in ANS Professional Divisions has been discussed and a formal program is being development.

The following standards projects were initiated in 2015 (2):

- ANS-15.11-201x, “Radiation Protection at Research Reactors” (revision of ANSI/ANS 15.11-2009)
- ANS-30.1, 201x, “Integration of Risk-Informed, Performance-Based Principles and Methods into Nuclear Safety Design for Nuclear Power Plants” (new standard)

The following draft and current standards were issued for ballot and public review in 2015 (10):

- ANS-2.30-201x, “Criteria for Assessing Tectonic Surface Fault Rupture and Deformation at Nuclear Facilities” (new standard)
- ANS-3.11-201x, “Determining Meteorological Data for Nuclear Facilities” (revision of ANSI/ANS-3.11-2005; R2010)
- ANS-6.3.1-1987; R2007; R201x, “Program for Testing Radiation Shields in Light Water Reactors (LWR) (reaffirmation of ANSI/ANS-6.3.1-1987; R2007)
- ANS-6.6.1-201x, “Calculation and Measurement of Direct and Scattered Radiation from LWR Nuclear Power Plants” (revision of ANSI/ANS-6.6.1-1987; R2007)
- ANS-8.20-1991 (R201x), “Nuclear Criticality Safety Training” (reaffirmation of ANSI/ANS-1991; R2005)
- ANS-8.27-201x, “Burnup Credit for LWR Fuel” (revision of ANSI/ANS-8.27-2008)
- ANS-10.8-201x, “Non-Real-Time, High-Integrity Software for the Nuclear Industry—User Requirements” (new standard)
- ANS-57.1-1992 (R201x), “Design Requirements for Light Water Reactor Fuel Handling Systems” (reaffirmation of ANSI/ANS-57.1-1992; R2005)
- ANS-59.51- 1997 (R201x), “Fuel Oil Systems for Safety-Related Emergency Diesel Generators” (reaffirmation of ANSI/ANS-59.51-1997; R2007)
- ANS-59.52-1998 (R201x), “Lubricating Oil Systems for Safety-Related Emergency Diesel Generators” (reaffirmation of ANSI/ANS-59.52-1998; R2007)

The following new standards, revised standards, and reaffirmations received ANSI approved in 2015 (12):

- ANSI/ANS-2.30-2015, “Criteria for Assessing Tectonic Surface Fault Rupture and Deformation at Nuclear Facilities” (new standard)
- ANSI/ANS-3.11-2015, “Determining Meteorological Data for Nuclear Facilities” (revision of ANSI/ANS-3.11-2005; R2010)
- ANSI/ANS-6.6.1-2015, “Calculation and Measurement of Direct and Scattered Radiation from LWR Nuclear Power Plants” (revision of ANSI/ANS-6.6.1-1987; R2007)
- ANSI/ANS-8.10-2015, “Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement” (revision of ANSI/ANS-8.10-1983; R2012)
- ANSI/ANS-8.27-2015, “Burnup Credit for LWR Fuel” (approval pending--revision of ANSI/ANS-8.27-2008)
- ANSI/ANS-10.8-2015, “Non-Real-Time, High-Integrity Software for the Nuclear Industry—User Requirements” (approval pending--new standard)
- ANSI/ANS-14.1-2004 (R2014), “Operation of Fast Pulse Reactors” (reaffirmation of ANSI/ANS-14.1-2004; R2009)
- ANSI/ANS-15.16-2015, “Emergency Planning for Research Reactors,” (Revision of ANS-15.16-2008)
- ANSI/ANS-57.1-1992 (R2015), “Design Requirements for Light Water Reactor Fuel Handling Systems” (reaffirmation of ANSI/ANS-57.1-1992; R2005)
- ANSI/ANS-58.9-2002 (R2015), “Single Failure Criteria for Light Water Reactor Safety-Related Fluid Systems” (reaffirmation of ANSI/ANS-58.9-2002; R2009)

- ANSI/ANS-59.51- 1997 (R2015), “Fuel Oil Systems for Safety-Related Emergency Diesel Generators” (reaffirmation of ANSI/ANS-59.51-1997; R2007)
- ANSI/ANS-59.52-1998 (R2015), “Lubricating Oil Systems for Safety-Related Emergency Diesel Generators” (reaffirmation of ANSI/ANS-59.52-1998; R2007)

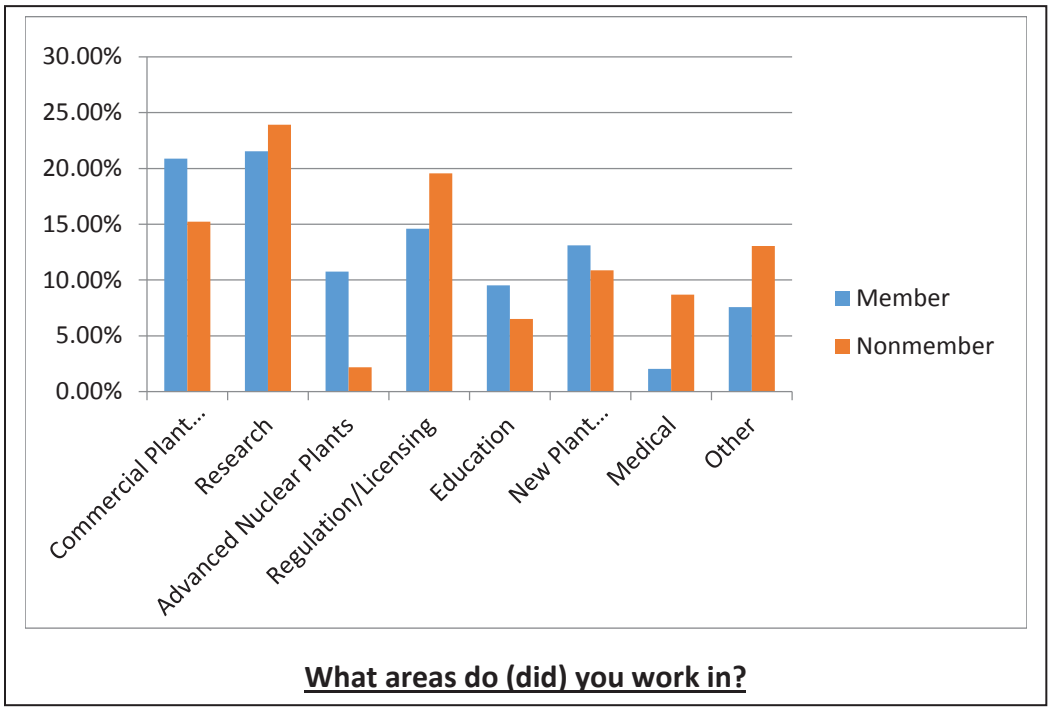
The following standards were published in 2015 (11):

- ANSI/ANS-2.30-2015, “Criteria for Assessing Tectonic Surface Fault Rupture and Deformation at Nuclear Facilities” (new standard)
- ANSI/ANS-3.11-2015, “Determining Meteorological Data for Nuclear Facilities” (revision of ANSI/ANS-3.11-2005; R2010)
- ANSI/ANS-6.6.1-2015, “Calculation and Measurement of Direct and Scattered Radiation from LWR Nuclear Power Plants” (revision of ANSI/ANS-6.6.1-1987; R2007)
- ANSI/ANS-3.1-2014, “Selection, Qualification, and Training of Personnel for Nuclear Power Plants” (supersedes ANSI/ANS-3.1-1993; R1999)
- ANSI/ANS-5.1-2014, “Decay Heat Power in Light Water Reactors” (revision of ANSI/ANS-5.1-2005)
- ANSI/ANS-8.10-2015, “Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement” (revision of ANSI/ANS-8.10-1983; R2012)
- ANSI/ANS-8.15-2014, Nuclear Criticality Control of Special Actinide Elements (revision of ANSI/ANS-8.15-1981; R2005)
- ANSI/ANS-8.19-2014, “Administrative Practices for Nuclear Criticality Safety” (revision of ANSI/ANS-8.19-2005)
- ANSI/ANS-15.16-2015, “Emergency Planning for Research Reactors” (revision of ANSI/ANS-15.16-2008)
- ANS/ASME-58.22-2014, “Requirements for Low Power and Shutdown Probabilistic Risk Assessment” (new trial use standard)
- ASME/ANS RA-S-1.2-2014, “Severe Accident Progression and Radiological Release (Level 2) PRA Standard for Nuclear Power Plant Applications for Light Water Reactors (LWRs)” (new trial use standard)

Standards Priority Survey
Executive Summary

Overview

A standards priority survey was issued as a means of gaining industry input, the results of which will help establish a priority list to direct the program of work of the American Nuclear Society (ANS) Standards Committee. The survey included 27 topical areas set by the ANS Standards Board representing revisions to current standards, reinvigorations of historical standards, and potential new topical areas of work.



What areas do (did) you work in?

The survey was sent to ~11,000 ANS members with a nearly identical survey made available to nonmembers through a link on the ANS homepage with notices issued through LinkedIn, Facebook, and Twitter. A total of 935 members and 15 nonmembers finished the survey although participants may not have completed each question in the survey. With insufficient nonmember participation, nonmember statistical data where provided cannot be considered valid but is included for information only. Member/nonmember survey participants represent research (22% / 24%), commercial plants (21% / 15%), regulation/licensing (14% / 20%), new plant engineering (13% / 11%), advanced nuclear plants (11% / 2%), education (9% / 6%), medical (2% / 9%), or other areas (8% / 13%).

Evaluation Method

Participants were asked to rate each of the 27 topical areas on a scale of 1 through 5, with 1 being the highest priority and 5 being lowest priority. Participants could select “not applicable” if the subject area was not relevant to their area of work. This method (as opposed to ranking all topical areas) was chosen to simplify the survey and allow participants to complete within 5 minutes.

While the survey was not designed to have participants rank the topics, a priority ranking was derived from the data by ordering the topics based on the percentage of participants who indicate each topic is

"high priority" (a combined value of 1 and 2). (Note: the percentage of participants who select not applicable (N/A) is included in the chart to reflect the level of need.)

Findings

The top ten topical areas considered "high priority" by the highest percentage of members compared to nonmember participants are shown in Table 1 below. Following Table 1, Chart 1 provides full member ratings followed by Chart 2 with nonmember ratings (for information).

Table 1. Top Ten Topical Areas

	Member	Nonmember (Informational)
#1	Criteria for Severe Accident Evaluation (ANS-58.15)	Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors (ANS-58.11)
#2	Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors (ANS-58.11)	Integrated Safety Assessments for Fuel Cycle Facilities (ANS-57.11)
#3	Risk-Informed and Performance-Based Nuclear Power Plant Design Process (ANS-30.1)	Criteria for Severe Accident Evaluation (ANS-58.15)
#4	Design Requirements for Light Water Reactor Spent Fuel Facilities at Nuclear Power Plants (ANS-57.2)	Criteria for Onsite Protective Actions During a Radiological Emergency (ANS-3.8.8)
#5	Post-Accident Monitoring (ANS-5.7.2)	Post-Accident Monitoring (ANS-5.7.2)
#6	Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications (RA-S)	Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications (RA-S)
#7	Containment Hydrogen Control (ANS-56.1)	Design Requirements for LWR Spent Fuel Facilities at Nuclear Power Plants (ANS-57.2)
#8	Determining Design Basis Flooding at Power Reactor Sites (ANS-2.8)	Determining Design Basis Flooding at Power Reactor Sites (ANS-2.8)
#9	Properties of Radiological Emergency Response Plans and Implementing Procedures and Maintaining Emergency Response Capability for Nuclear (ANS-3.8.3)	Nuclear Power Plant Decommissioning Process (new)
#10	Radioactive Source Term for Normal Operation of Light Water Reactors (ANS-18.1)	Containment Hydrogen Control (ANS-56.1)

Chart 1. Member Priority Ratings for Various Topical Areas

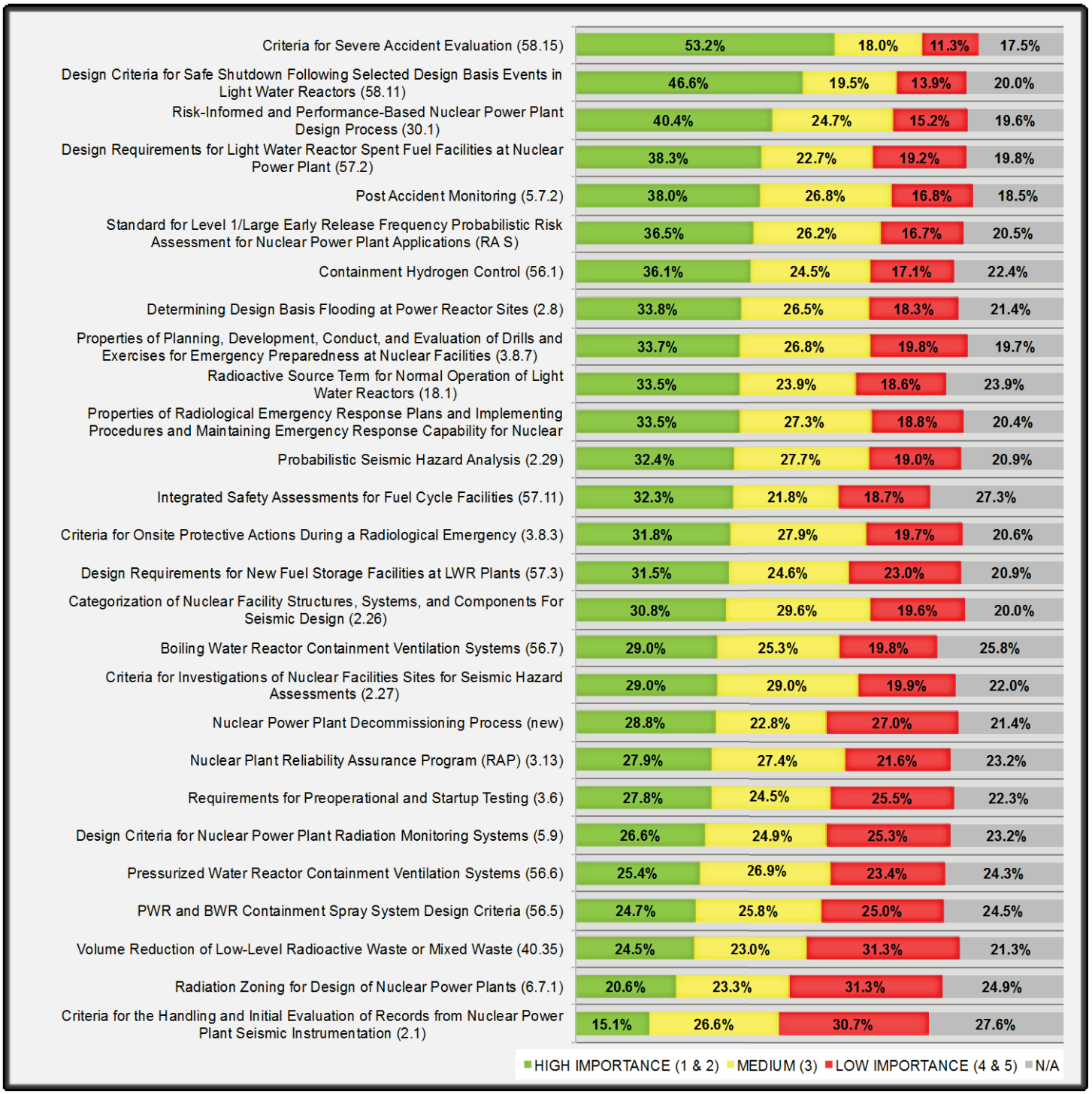
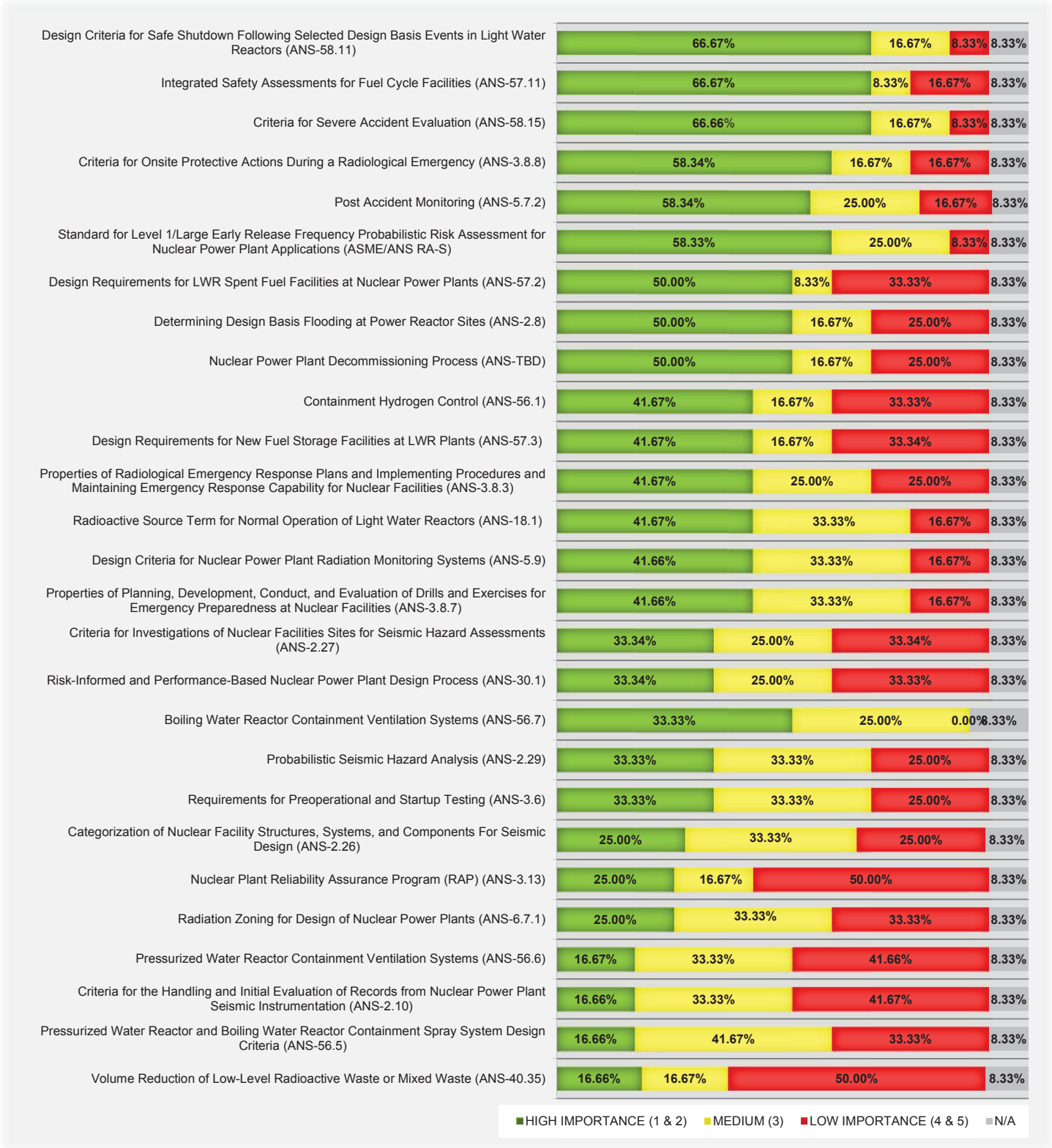


Chart 2. Nonmember Priority Ratings for Various Topical Areas (data for informational purpose only)



Summary of Comments and Suggestions for Developing Standards

Participants provided nearly 100 general comments of which most were suggestions for developing new standards. Although many subject areas were mentioned, a number of participants suggested that ANS develop standards on cybersecurity, emergency preparedness, advanced reactors, and small modular reactors. Two additional reoccurring themes were voiced in the comments, that is, ANS standards should be available without charge and education on the purpose and benefit of standards is need.

In addition to providing general comments, nearly 90 individuals expressed interest in joining the Standards Committee and/or supporting additional standards projects. Particularly interesting was a response from six individuals expressing interest in supporting one of the lower-placed, topical areas for a proposed standard ANS-3.6, "Requirements for Preoperational and Startup Testing."

Excerpts of participant comments are provide below by category for your reference:

<u>Standards or topical areas noted of importance</u>

- I expect new reactors and national labs will have competing priorities. Ensure the existing fleet's needs are met given the increased regulatory requirements.
- Emergency planning standards need to be reviewed in the context of lessons learned - admitted or not - by the federal agencies - during Fukushima. The National Response Framework was not followed.
- Safety analysis, such as criticality control, is crucial for nuclear safety as it dominates whether the reactivity of the reactor will continually go up or go down.
- ANS-58.2 (Two-Phase Jet Model) has been rejected by members of the ACRS, so further updating that standard would be beneficial to the industry, especially in attempts to close out GSI-191.
- Consider a new ANS standard on applications of general design criteria for advanced nuclear power plants.
- Consider development of an industry standard for a corrective action program to satisfy N45.2 and 10 CFR50 App B. No standard exists and, thus, the NRC makes its inspection practices based on opinion. INPO has not created a standard and NEI is intelligent enough not to get involved. This could dove-tail with an IEEE initiative (since at least 2006) to formulate a standard for root cause analysis.
- The extension of simulation technology from training into engineering design validation and analysis is seriously overdue.
- Standards for licensing new plant designs starting with test facilities and low power test reactors for power ramp up and testing
- Standards for fuel processing and recycle
- Future standards efforts should focus on protecting the three fission product barriers and minimizing the release of radioactive material to the environment. The current regulatory and standards structure address items related to this goal, but fission product barrier production should be emphasized.
- Public communications in the event of fission product barrier failure should also be addressed.
- Solid radwaste characterization standard
- Standards for modular reactors for siting, EP, seismic requirements
- Nuclear power plant defense-in-depth adequacy
- A standard for root cause analysis at nuclear facilities

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- Standards for Chapter 18, for cybersecurity, integrated procedures, and electronics in control rooms, safe shutdown rooms, design rules for placement of electronic equipment, record keeping for cable routing, and beyond design basis event human actions
- Standards for small modular reactors
- Decommissioning and waste management support activities should be the ANS Standards Committee's highest priority right now. A new standard is needed in support of the changes expected for severe accident guidance.
- A uniform set of guidelines would benefit the fleet. The new standard could be modeled after the recommendations from the IAEA on a similar topic.
- Any new standards that are created should also look forward to future generations of reactor designs. Concentrating on the current fleets of LWRs is useful, but the generation of standards for advanced reactor types could aid in the evaluation and approval of advanced reactor types for construction as well as allowing for the decommissioning of older reactor facilities that are unnecessarily prone to failure.
- I do think it is helpful for ANS to duplicate the efforts of NRC, NEI, and INPO in the emergency preparedness and response area.
- There is nothing about accident-tolerant fuels. At this moment, most of the nuclear industry thinks of zirconium alloy only as cladding material for fuel. This concept should be more open and include other material such as FeCrAl steels and silicon carbide, among others.
- There should be more emphasis on developing advanced safety systems for LWRs.
- Emergency response during general catastrophe/when infrastructure is degraded
- Cybersecurity, export control (both NRC and DOE regulation), advanced reactor accident criteria
- General design guidance from ANS, especially safety class codes and standards, are helpful.
- I believe the three most important areas in nuclear right now and for the near-term 1) onsite spent fuel storage facilities (existing), 2) onsite spent fuel storage facilities (new) and 3) NPP decommissioning process, as these several areas are sure to be used heavily over the next 10-20 years.
- An ANS standard for the evaluation of new fuel designs included in the current DOE Accident Tolerant Fuel Program would be very useful. From my perspective as a researcher studying the irradiation performance of ATF concepts, a recommended set of performance data would be a useful tool to design experiments against.
- A consensus standard for disposability of dry storage canisters for spent fuel would be an important step toward disposition of the existing inventory of DPCs and could give operators a choice for disposability when buying dry storage systems.
- Standards on nonproliferation, safeguards, or safeguards by design

<u>Miscellaneous suggestions</u>

- ANS should educate members on how standards ultimately impact regulations and the "business of nuclear." There is very little understanding in my opinion of how changes to standards impact the economics of operating nuclear plants.
- Clarify (or remind) survey-takers of the purpose of ANS standards and how they're used in industry and regulation.
- Develop strategic plan for integrating ANS standards initiatives and NEI initiatives.

<u>Complaints</u>

- We should not charge for standards. Electronic versions should be available for download at no charge.
- There needs to be a way for standards to have a greater weight with the NRC.

- ANS should offer standards at no cost as a public download.
- Some of the ANS standards are outdated so NRC cannot reference them in guidance documents. Effort should be made to help keep these standards up to date as much as possible.
- Spending ANS resources on developing new U.S. reactor design criteria right now is like tossing the money and resources away. It makes no sense whatsoever. Such thinking is outdated and completely oblivious to the current reality that there will be no U.S. reactor orders for decades.

Conclusion

The ANS Standards Committee needs to improve its communication with ANS members and the user community so that they understand 1) the benefits of voluntary consensus standards to the user community, 2) the advantage to companies and individuals that participate in standards development, 3) endorsement or adoption of voluntary consensus standards by government agencies, and 4) the minimal charge of a voluntary consensus standard in comparison to the actual cost of its development.

Improvement is needed in the area of maintaining current standards. Additionally, areas identified which are lacking in standardization need to be addressed. Specifically new or updated standards on emergency preparedness, cybersecurity, spent fuel storage, severe accidents, and standards for small modular reactors require consideration. Standards identified as the top-ten priority need to be expedited or initiated. Other suggested areas warrant further evaluation before expending valuable resources.

It is recognized that the topical areas in the survey as well as comments submitted do not affect all eight ANS consensus committees. The Nuclear Criticality Safety Consensus Committee (NCSCC) and the Joint Committee on Nuclear Risk Management have established close ties with their user communities which has facilitated staffing, use and maintenance of their standards. In the case of the NCSCC, much of their success is likely attributed to the strong support of the Nuclear Criticality Safety Professional Division which holds a standards forum/technical session at each ANS national meeting to discuss industry issues affecting nuclear criticality safety standards, reviews NCSCC current standards and those in development, as well as encourages participation on NCSCC standards. Further evaluation of these effort may provide valuable lessons learned for the other consensus committees.

Recommendation

<u>Recommendation for disposition of highest-rated, topical areas (Table 1 and those with multiple suggestions)</u>
The Standards Board should direct that the following standards already in development establish a schedule to finalize a draft within 12 months:

- Integrated Safety Assessments for Fuel Cycle Facilities (ANS-57.11)
- Risk-Informed and Performance-Based Nuclear Power Plant Design Process (ANS-30.1)
- Design Requirements for LWR Spent Fuel Facilities at Nuclear Power Plants (ANS-57.2)
- Determining Design Basis Flooding at Power Reactor Sites (ANS-2.8)
- Radioactive Source Term for Normal Operation of Light Water Reactors (ANS-18.1)
- Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications (RA-S)

The Standards Board should assign the following topical areas to the appropriate consensus committee to 1) determine whether any industry guidance exists to build on, 2) ensure that efforts would not duplicate those of another standards development organization, 3) solicit subject matter experts to form a working group, and 4) develop a scope for a new standard or broaden the scope of a current standard to be completed within 12 months:

- Criteria for Severe Accident Evaluation (ANS-58.15)
- Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors (ANS-58.11)
- Criteria for Onsite Protective Actions During a Radiological Emergency (ANS-3.8.8)
- Post-Accident Monitoring (ANS-5.7.2)
- Containment Hydrogen Control (ANS-56.1)
- Properties of Radiological Emergency Response Plans and Implementing Procedures and Maintaining Emergency Response Capability for Nuclear (ANS-3.8.3)
- Nuclear Power Plant Decommissioning Process (new - undefined)
- Cybersecurity (new - undefined)
- Advanced and small modular reactors (new - undefined)
- Requirements for Preoperational Startup Testing (ANS-3.6)

<u>Recommendation for disposition of lower-placing, topical areas</u>
The Standards Board should direct additional evaluation on the need to initiate new standards (those not current standards or in development) in low-rated topical areas including the following:

- Radiation Zoning for Design of Nuclear Power Plants (ANS-6.7.1)
- Volume Reduction of Low-Level Radioactive Waste or Mixed Waste (ANS-40.35)
- PWR and BWR Containment Spray System Design criteria (ANS-56.5)
- Pressurized Water Reactor Containment Ventilation Systems (ANS-56.6)
- Design Criteria for Nuclear Power Plant Radiation Monitoring Systems (ANS-5.9)
- Nuclear Power Plant Decommissioning Process (new – undefined)
- Boiling Water Reactor Containment Ventilation Systems (ANS-56.7)

<u>Recommendations to general suggestions</u>
The ANS Standards Board should

- contact ANS Professional Divisions with charters closely related to consensus committees and subcommittees with a request for their sponsorship,
- establish a standards educational program for non-standards developers,
- create a strategic plan to address and set a schedule to
    - solicit input from the user community to ensure maintenance and development of relevant standards for the industry,
    - solicit new members to sufficiently staff standards committees to maintain current, standards and develop new standards,
    - encourage participation of young professionals to sustain the standards program,
    - establish a Standards Committee training program to ensure volunteers are familiar with policies and procedures in order to develop higher-quality standards in less time, and
    - create a standards educational program for the user community.

American Nuclear Society
Standards Board

PART A – Purpose & Planning

Purpose/Mission (changes to Rule B7.1.4(n) submitted to the BRC 8/24/15)

ANS Standards Board — The ANS Standards Committee is composed of all persons engaged in standards development for the Society (i.e., the Standards Board, its consensus committees, special committees, subcommittees, and working groups). The chair and vice chair of the SB shall be the sole officers of the Standards Committee.

The Standards Board (SB)[66] is an ANS Standing Committee that provides policy and procedural direction for the standards activities of the Society and the ANS Standards Committee. Membership on tThe SB[66] shall be composed of[60]

- not fewer than six (6) nor more than twelve ten (1210) appointed members that are recommended by the chair of the SB and approved by the President of ANS. TThese appointed[60] Fellows, Members, Student, Emeritus, or Honorary Life Members.[61] members[60] shall have substantial interest and experience in the development and use of standards for the application of nuclear science and engineering; and
- the chair of each of the consensus committees; and
  any temporary voting member assigned by the chair of the SB and approved by the SB for a specific purpose and period of time.

Total voting membership of the SB shall include appointed members and the chair of each consensus committee and should not exceed twenty (20).

These Aappointed members shall serve a three (3) year term, with the terms of approximately one third (1/3) of the members expiring at the close of each ANS Annual Meeting. No SB[66] member shall be a member of the ANS Board of Directors nor an ANS officer while serving on the SB[66], consistent with ANSI policy, which specifies that the SB[66] be kept separate from society governance.

The SB[66] is also expected to establish liaison relationships with other standards-developing and nuclear organizations for the purpose of communication and coordination of activities of mutual interest; these liaison personnel from outside ANS may serve on the SB[66] as non-voting members.[61]

A non-voting, Administrative Secretary of the SB[66], appointed by the Executive Director, shall be responsible for the administration of the standards activities of the Society and the Standards Committee.

~~Under the supervision and control of the SB[66], a standards committee conducts all aspects of standards activities and interests within the Society and represents the SB[66] in activities with other organizations engaged in similar work. The standards committee is composed of all persons engaged in standards development for the Society. The chair and vice chair of the SB[66] shall be the officers of the standards committee.~~

C~~There are also c~~onsensus committees are established within the ~~s~~Standards C~~c~~ommittee under the SB[66] to develop and ensure consensus as a basis for approval of proposed or revised standards, ~~and~~ to manage the development of proposed standards and revisions to existing standards, and to represent the SB in activities with other organizations engaged in similar work. ~~standards.~~ The chairs of each of the consensus committees shall serve as ex-officio voting members of the SB[66], whose terms are concurrent with those of the offices from which they serve.

From time to time, special committees of the SB are established to support long-term needs of the Standards Committee. ~~The chair of the SB may designate, subject to the concurrence of the members of the SB, the chair of any special committee as a voting member of the SB during the term of the special committee.~~

The ~~s~~Standards ~~c~~Committee and the consensus committees are not standing committees under these by-laws and rules. The guidance and approval of the ANS Board of Directors shall be obtained on all matters of policy that may affect overall Society endeavors, and on the advisability of initiating work in new areas. The SB[66] shall confirm annually to the Board of Directors that ~~members of the sStandards cCommittee are adequately qualified for their respective positions and that~~ the membership of each consensus committee has an appropriate balance of ~~representation~~ interest in accordance with the accredited Rules and Procedures established by the ANS Standards[66] Board[67].

Objectives

1. Provide direction to the ANS Standards Committee on setting standards development priorities to meet the needs of the industry.
2. Establish ANS Professional Division (PD) Sponsorship Program to support maintenance of current standards, broaden industry input in setting standards priorities, and increase ANS member participation in standards activities.
3. Establish standards training program for Standards Committee members to ensure development of standards consistent with policies and procedures producing a consistently better quality product.
4. Create standards educational program for non-Standards Committee members to 1) increase knowledge of what a voluntary consensus standards is, 2) their benefit to the industry, and 3) advantage of supporting standards development to companies and individuals.
5. Progress high-priority standards.
6. Establish approach for incorporation of risk-informed and performance-based principles into ANS standards where applicable.

Actions Objective 1 (Standards Prioritization)

1. (July/August 2015): Launch Standards Priority Survey
2. (September 2015): Draft executive summary of survey results; request input from consensus committee chairs.
3. (October 2015): Finalize Standards Priority Survey Executive Summary and provide to ANS Board of Directors.
4. (November 2015): Assign survey findings/recommendations to appropriate committees.
5. (June 2016): Responsible committee chairs report on status.
6. (October 2016): Assess need and appropriate method(s) to seek current input on standards priorities.

Actions Objective 2 (ANS PD Sponsorship Program)

1. (December 2015): Evaluate ANS PDs for appropriate match with consensus committees.
2. (January 2016): Prepare and send sponsorship request letters to ANS PDs.
3. (June 2016): Consensus committee representatives attend ANS PD meetings to roll out program.
4. (August 2016): Create PD Standards Review Committees (for maintenance of delinquent standards).
5. (October 2016): Evaluate progress (i.e., number of PD sponsorships established; number of standards reviewed).

Actions Objective 3 (ANS Standards Committee Training Program)

1. (August 2015): Finalize training presentations and post for Standards Committee member access.
2. (November/December 2015): Enlist instructors for web-based training program.
3. (February 2016): Initiate series of web-based training presentations.
4. (June 2016): Evaluate participation in webinars and appropriate next action.

Actions Objective 4 (Standards Educational Module for Non-Standards Developers)

1. (November 2015): Create Standards Education Task Group to determine platform (webinar and/or technical session) to educate non-Standards Committee members about standards.
2. (January 2016): Initiate discussions with PDs on possibility of hosting standards educational technical session at November 2016 meeting.
3. (February 2016): Develop educational module/presentation and recruit instructor(s).
4. (April 2016): Standards Education Task Group submits platform recommendation and draft module/presentation to the Standards Board for review and approval.
5. (May 2016): Educational module/presentation finalized.
6. (June 2016): Launch web-based standards education program – if decision made to launch web-based program.
7. (July 2016): Evaluate participation and input from web-based standards education program – if decision made to launch web-based program.
8. (November 2016): Hold standards educational technical session – if PD sponsors technical sessions.

Actions Objective 5 (Progress High Priority Standards)

1. ANS-30.1, "Risk-Informed and Performance-Based Nuclear Power Plant Design Process"
    a. (October 2015): Form ANS-30.1 Working Group
    b. (June 2016): Complete initial draft for working group and subcommittee review.
    c. (June 2017): Finalize draft for first consensus committee review.
2. ANS-30.2, "Structures, Systems and Component Classification and Treatment Criteria for Nuclear Power Plants" (title to be approved)
    a. (October 2015): Form ANS-30.2 Working Group.
    b. ((November 2015): Hold initial working group meeting.
    c. (June 2016): Submit recommended approach to consensus committee.
    d. (June 2016): Complete first draft for working group review.

Actions Objective 6 (Establish approach for incorporation of risk-informed and performance based principles into ANS standards)

1. (October 2015): Identify pilot program and approach.
2. (November 2016): Provide summary of lessons learned from pilot program.
3. (June 2017): Incorporate lessons learned into the Risk-Informed and Performance Based Plan.

Actions – General

1. (October 2015): Draft five-year Standards Strategic Plan.
2. (May 2016): Finalize Standards Strategic Plan and provide to ANS Board of Directors.
3. (October 2016): Prepare Part B, Executive and Results, and Part C, Self-Assessment and Narrative.
4. (October 2016) Complete evaluation of top ten recommendations from standard including action items and schedules.

ATTACHMENT 4
(UNAPPROVED)

AMERICAN NUCLEAR SOCIETY (ANS)
STANDARDS COMMITTEE STRATEGIC PLAN
January 2016 through December 2020

Vision

The American Nuclear Society (ANS) Standards Committee seeks to be the primary leader in standardization for the nuclear science and technology industry.

Mission

To develop and maintain high-quality, voluntary consensus standards that meet the needs of the industry[1] and promote their use as standards of choice.

Goals and Objectives

The Standards Committee's five strategic goals—prioritization on industry needs, high quality standards, improve production and efficiency, outreach, and improve industry representation and sustainability of working groups, subcommittees, and consensus committees—are the committee's response to feedback from the standards priority survey, industry input, and directives of the ANS Standards Board. Each goal is defined by its objective and supported by detailed initiatives to achieve these goals.

Goal 1: Prioritization on Industry Needs

Objective: Establish an approach and supporting systems to collect industry priority input and incorporate such input into the standards work processes

Initiatives

A. Evaluate the results of the initial industry priority survey
B. Assign responsibilities to consensus committees for high priority standards
C. Assist the consensus committees in obtaining the required staffing using "Outreach" initiatives
D. Expedite the development of high-priority standards by establishing an oversight mechanism and a defined schedule with milestones for developing a first draft
E. Apply the "Improved Production and Efficiency" initiatives
F. Incorporate risk-informed and performance-based methods in ANS standards where appropriate
    a. Identify and apply approach
    b. Evaluate and prepare summary of lessons learned
    c. Incorporate lessons learned into the Risk-Informed and Performance-Based Plan

[1] The term "industry" as used in this plan means the portions of the nuclear science and technology community within the scope of the ANS Standards Committee.

Goal 2: High Quality Standards

Objective: Establish a training program for ANS Standards Committee members and non-Standards Committee members

Initiatives

A. Create a standards training program for Standards Committee members to ensure development of standards consistent with policies and procedures producing a consistently better quality product
B. Create a standards educational program for non-Standards Committee members to increase knowledge of 1) what voluntary consensus standards are, 2) their benefit to the industry, and 3) the advantage of supporting standards development to companies, agencies, and individuals

Goal 3: Improve Production and Efficiency

Objective: Improve maintenance and development of ANS standards

Initiatives

A. Expedite the development of high-priority standards by establishing an oversight mechanism and a defined schedule with milestones for developing a first draft
B. Establish an expedited approach and schedule to facilitate the development of high-priority standards
C. Complete the Standards Volunteer Database to facilitate recruiting personnel for Standards Committee activities
D. Maximize the use of the ANS Standards Workspace and communications systems to eliminate the need for travel and face-to-face meetings to the maximum extent possible
E. Develop funding sources and approaches to secure such funding when it is needed to support the development of high-priority, high-quality standards
F. Streamline the reaffirmation process to reduce the number of delinquent standards (>5 years since ANSI approval/reaffirmation) by establishing a systematic review of delinquent standards at the 4-year mark
    a. Use the Standards Committee Workspace system to automatically send out a Reaffirmation Form to the working group chair, if known, with copies to the subcommittee chair and the consensus committee chair
    b. Automate the subcommittee and consensus committee approvals of reaffirmation, withdrawal, and revision recommendations
    c. Establish an ANS Professional Division Sponsorship Program to aid in review of delinquent standards without active working groups
G. Develop a subcommittee/consensus committee evaluation scorecard to be used to identify needed improvements

Goal 4: Outreach

Objective: Increase industry input and awareness of standards development activities to insure relevance

Initiatives

A. Use survey methods as needed to gain feedback from industry
B. Provide feedback to survey responders
C. Establish leadership meetings with regulatory agency and industry executives to align needs

D. Establish an ANS Professional Division Sponsorship Program to broaden input in setting standards priority
E. Seek liaison arrangements with relevant standards development organizations where needed
F. Establish an approach to keep industry persons advised of standards progress in their areas of interest

Goal 5: Improve Industry Representation and Sustainability of Working Groups, Subcommittees, and Consensus Committees

Objectives: Increase participation in the ANS standards development to assure continued technical capability of standards committee members, improve utility involvement, and increase participation of young professionals

Initiatives

A. Approach owners' groups and industry organizations soliciting member participation in ANS standards
B. Establish a schedule to send notices to ANS Student Section members, the Young Member Group Division, and North American-Young Generation Nuclear with an opportunity to participate in ANS standards
C. Establish an ANS Professional Division Sponsorship Program and encourage participation in ANS standards
D. Advertise upcoming standards efforts with requests for support using *Nuclear News*, Nuclear Café, and ANS LinkedIn Group
E. ANS IT Department to complete the Standards Volunteer Database and make it available to subcommittee chairs

ATTACHMENT 4
(Continued)

Standards Board Comments on Draft Strategic Plan

First	Last	Category	Section	Page	Line	Subject	Comment	Proposal
Donald	Spellman	Substantive				Recommend major revision	Although I am not eligible to vote on the strategic plan, I felt the need to make some comments about it. This strategic plan is "same ole, same ole". Based on a lot of things that are happening like ANS losing its leading position in the standards world, a great need for cooperation with standards organizations outside the US and the IAEA, the recent lack of support of the NRC, ANSI and NIST for continuation of the NESCC, and the trouble we are having getting "working" volunteers for the standards committee: I think it is time for ANS SC to take a different direction! Some of my proposed goals are: 1. Make the purpose of the SC to openly support the US national nuclear industry with cooperation with external organizations, that's why I don't like the word "voluntary" consensus standards. Why highlight the fact that our standards use is voluntary? We develop "national" consensus standards plain and simple. If they are used overseas etc, so be it. That's only because they are good documents and have the tag as being "consensus" standards in the first place. That's the only leverage we have over the IAEA. We are here to provide quality US consensus (certified by ANSI) standards for our nuclear industry. 2. Say that our standard support siting, design, operations, fuel management including fabrication facilities, criticality safety, environmental issues, and waste management. We don't write standards for fabrication and use of mechanical components nor do we write standards for testing and materials or human factors, or I&C, or electric design and installations. Let's make that clear! We aren't the #1 standards organization overall and its time we clarified that. 3. Goal #1 isn't a long term strategic goal, its an immediate one to refocus our efforts now. Most of the initiatives appear to be short term action items to be tracked by the SB, not goals of a strategic plan. 4. Goals without measurement criteria are defined as "dreams". 5. A while back, Caroline from SDG&E had provided us an excellent framework for a strategic plan with measurable goals. Whatever happened to that? If I had a vote, I would strongly vote negative on this strategic plan. I'll be glad to help with the re-write given a few dedicated helpers.	Send the strategic plan back to the SB for designation of a special committee to rewrite it..

Standards Board Comments on Draft Strategic Plan

First	Last	Category	Section	Page	Line	Subject	Comment	Proposal
Donald	Spellman					Suggestions for new SC Strategic Plan	Attached find an email from Caroline McAndrews in 2013 in answer to my request that she develop a draft strategic plan for the SC. Also find her draft plan and a table showing goals, strategies, initiaties, and success measures. I recommend we scrap the current proposed plan and go back to the draft that Caroline developed and update the issues.	I recommend we scrap the current proposed plan and go back to the draft that Caroline developed and update the issues.
Donald	Spellman	N/A				Attachments for my Comment #2	Attachments to my Comment #2	
Donald	Spellman	N/A				Attachments for my Comment #2	Attachments for my Comment #2	
Donald	Spellman	N/A				Attachments for my Comment #2	Attachments for my Comment #2	NOTE: Attachment available upon request.
Donald	Eggett	Substantive	Entire draft			Goals are not strong and focused enough	Comments were based on the five goals presented in the strategic plan. I felt three goals 1, 4, 5 were ok but still needed some improvement. Goal 2 as listed should not be a goal Goal 3 as stated is weak and needs improvement. Refer to attachment for detailed comments.	(see above -- i.e., revised strategic plan uploaded to Workspace available upong request)
Prasad	Kadambi	Substantive				SB Strategic Plan Lacks Defined Outcomes	The draft of the Strategic Plan subject to a vote by 10-20-2015 lacks clearly defined outcomes. I have added specific objectives to "Goal 1", under "Initiatives" specific outcomes that would remedy the deficiency. If incorporated, I change my vote to "Approved".	Incorporate risk-informed and performance-based methods in ANS standards where appropriate to show benefits of modernization of standards by producing, at a minimum, Working Group approved drafts of three standards over the duration of this Strategic Plan 1. Identify and supervise application of improved approaches into the Action Plans for at least three standards before the end of Year 2 2. Evaluate and prepare summary of lessons learned regarding modernization of standards and report to the ANS Board of Directors 3. Incorporate lessons learned into the Risk-Informed and Performance-Based Plan, and by the end of Year 4 publish a paper in an ANS journal for the benefit of other Standards Developing Organizations.

Standards Board Comments on Draft Strategic Plan

First	Last	Category	Section	Page	Line	Subject	Comment	Proposal
James	August	Substantive	A	1, Goals & Obj	survey	Make it happen	As a result of returning to an operating plant (Vogtle), once again I'm seeing what the value of ANS standards could be (with emphasis on "coould"). There are so many areas where plant interpretations of guidance, including endorsed guidance is very confused, ANS standards has a major role to play if (really if and only if -- iff) they can go beyond constrained, complex written interpretations of materials such as 50.59 evaluations. At one plant I'm well-versed in today, the 50.59 process implementation of NEI 96-07 leaves much to desire. It's only one of many areas where ANS can play a useful, significant role to help industry get better, save money and reduce costs while improving nuclear safety.	Honestly, industry does not know what to ask for. Any survey needs to find the areas where industry spends time and money and its performers are frustrated and unhappy with products to figure out where to focus efforts first.
James	August	Substantive	3	2 Goal 3, Initiative B, Improved Production and Efficiency	B. expedited approach	Goal 3 Improved Production and Efficiency	Standards need not be lengthy or complex to be useful. Right not at Vogtle 1/2, its clear that the functional equipment groups (FEGs) a contractor developed are virtually worthless. These FEGs are a simple concept that systems engineering should be able to use, but as implemented here, they serve no useful purpose in most cases because they are so poorly developed. FEG standards would improve MRule analysis, safety and cost effectiveness, yet no ANS FEG stadard exists. Why not?	Like so many other things, FEGs are required, and yet few seem to have a good feeling for what they are and the roles they serve. An ANS standard could complete this picture to help industry be far more effective. For FEG, think of a Functional Block Diagram for the equipment in a system. Sadly, some (most) plant engineering groups dont know thats what they are.
James	August	Substantive	4	2 Goal 4, Outreach	A. use survery to gain feedback from industry	Goal 4 Outreach	Industry considers ANS superficial to their needs because ANS has never broken beyond theory and regulatory focus to really consider what industry needs. Unless you work in industry, you cant see their need. If you do work in industry, you see that we in industry, or our industry and management is not very good at assessing its needs. Here where I work, there's high engineer turnover yet management struggles to understand how to improve working conditions. In the mean time, engineers are burdened with developing extensive 50.59 reviews to do simple maintenance done many times before because whoever wrote the 50.59 process procedures, based on NEI 96-07, really didnt understand the process, its intended use or what it should do. The net effect is that plant engineering is burdened with an ineffective 50.59 screen process based on a very complex 50.59 interpretation by NEI.	To perform outreach well, ANS is going to need to have some very creative people inside industry or with those contacts who know how to solicit feedback and interpret it to quantify industry needs. This is a function ANS doesnt do well at this time for two reasons (1) few indstruy people who can quantify needs and (2) within those few people in ANS who work in industry, very few with the skills to know how to identify and develop needs. I leave this to the ANS standards and executive boards to contemplate for solutions.

Standards Board Comments on Draft Strategic Plan

First	Last	Category	Section	Page	Line	Subject	Comment	Proposal
							Continuation of above comment: We all lose because (1) costs escalate as a reuslt, (2) engineers doing reviews are frustrated and (3) safety isnt benefited because the intent of NRC screening is not met with consistent evaluations. Work to screen activities is okay becuase the work -- maintenance -- was accomodated in desgins and really should be screened out on several different screening criteria. Instead it moves forward to create more paperwork and burden the process. This is but one of many ways that clear standards could help. Bodies such as NEI struggle even more to write clear guidnace becasue they write to an audience -- the NRC, and they write what they think the NRC wants, not based on a fundamental need or prinicple. The ANS doesnt carry that burden.	

ATTACHMENT 5

Patricia Schroeder

From: Chuck Moseley <longgray65@nc.rr.com>
Sent: Tuesday, October 20, 2015 1:21 PM
To: 'Flanagan, George F.'
Cc: Patricia Schroeder; 'ssn617'
Subject: RE: DC Meeting

Dear George

First I want to applaud you on your thoughtfulness and calmness in leading the SB since your ascension to Chair. Lord knows that you have had your share of opportunities!

I recently reviewed the Standards Service Award policy which was successfully approved and implemented in August 2014. As I communicated in early September (see below) I was very disappointed with the selection process last year and have thrown my hat in the ring to serve on the selection committee again if you see fit. One thought, as suggested below, we could discuss is making the SB Vice Chair the permanent sitting chair – this would require a minor change to the existing policy.

Sounds like an interesting meeting is brewing for DC – sorry I will miss it!

Chuck

From: Chuck Moseley [mailto:longgray65@nc.rr.com]
Sent: Tuesday, September 08, 2015 1:40 PM
To: 'Flanagan, George F.'
Cc: 'Pat Schroeder'
Subject: DC Meeting

Hi George

The best laid plans … have to be changed. Was all set for DC meeting, staying with classmate as before, when my West Point class golf outing with ~ 40 golfers and wives was shifted to earlier in the week - Sunday through Wednesday in Pinehurst.

Cathy and I are morally and financially committed, as well as pre golf hosts for some of those flying into Raleigh.

Having said that, I am throwing my hat into the ring to participate in the Standards Service Award selection. I was disappointed in the way that it was

handled last year. One “new” thought I had was to perhaps name the SB vice chair as the permanent chair of the selection committee.

See you in New Orleans

Chuck

ANS Standards Staff/Secretary Report
November 2015

ANSI Audit Report

The American National Standards Institute audited the ANS standards program in August of this year. The audit report recognized a well-organized program and gave high marks for openness, balance, collaboration with other standards development organizations, and international participation. The auditor cited two sections in our accredited procedures that require change to comply with the ANSI Essential Requirements along with several suggestions for improvement. Section 5.5 will be revised to 1) state that all objectors will receive a written disposition of their comment resolutions, 2) state that all substantive changes shall be circulated, and 3) state that the consensus body shall be given the opportunity to respond, reaffirm, or change their vote when substantive changes are recirculated. Additionally our Records Retention Policy will be updated to recognize that records of withdrawn standards shall be retained for five years after the date of withdrawal. The auditor also suggested that we add additional detail on discontinuance of a standards project and that we include language in our procedures that inquiries on our standards are to be provided in writing. Although not documented in our procedures, these additions do not reflect a change in our practice.

The auditor found one error on a document submitted to ANSI requesting public review for a reaffirmation. The document included the acronym of "ANSI" with the year of the reaffirmation listed as 201x. Since the reaffirmation had yet to be approved, it was premature to include ANSI in the designation. ANS staff recognizes this error and will make sure to submit forms using the ANSI acronym correctly in the future.

Required and suggested changes will be made to our accredited procedures. They will then be submitted to the ANS Standards Board for approval before submitting the revised procedures to ANSI. The next audit is anticipated for 2020.

Standards Priority Survey

A standards priority survey was issued to ANS members in July and made available to nonmembers on the ANS home page and through social media. About 1000 individuals completed the survey providing valuable input to set priorities for the program of work. Survey feedback showed that improvement in communication with ANS members and the user community and improvement in maintaining current standards were needed. High-priority standards in development were identified and recommended to be expedited. Topical areas shown to be of interest to the industry will be explored for standardization. Input from the survey and directives from the Standards Board were used to prepare a Governance Plan with measurable goals for the next 12-18 months and a five-year strategic plan. The plan recognizes five strategic goals of prioritization of industry needs, high quality standards, improved production and efficiency, outreach, and improved industry representation and sustainability of working groups, subcommittees, and consensus committees.

ANS Standards Committee Workspace Update

<u>Workspace Usage Report</u>
The implementation of the ANS Standards Committee Workspace was successfully completed in 2015. This web-based collaborative tool was initiated in early 2014. Workspaces have been created for all active

standards committees. At present, the ANS Standards Committee Workspace includes 161 active groups, 565 active participants, and 1370 documents. The site has been used to issue 162 ballots, create 101 calendar events, and track 197 action items. Additional workspaces and users accounts continue to be added when working groups are reformed or new working groups are created.

Trainings Held and Planned

A series of Workspace training webinars were initiated by ANS staff to insure that members receive instruction on how to use Workspace for balloting and commenting, retrieving documents, using the calendar and action items, finding "My Groups," and updating user accounts. More detailed training webinars were offered to standards committee chairs responsible for the management of a workspace. Feedback in general was very positive. However, feedback from members that participated in the training on "Retrieving Comments/Posting Resolutions" expressed the sentiment that the training would likely need to be repeated when a ballot was issued and comments needed to be resolved and posted to Workspace. To accommodate, staff will offer this training to working group chairs when notifying them that a ballot has closed. Because of the similarity of the training on balloting and commenting, staff believes that future trainings can cover both within the same webinar.

Recognizing that it is not possible to accommodate all members at a scheduled time and that some members may have specific need for guidance, specialized trainings can be arranged on request. Several additional trainings will be scheduled throughout 2016. The following trainings have been and/or are anticipated to be held:

Trainings Held	**Trainings Scheduled/Anticipated**
8/12/15: High-Level Overview (new users)	11/20/15: Workspace Management for ISO Advisors
8/13/15: General Commenting (all)	
8/19/15: Balloting (all)	**2016 -- 3rd Tuesday of the Month at 2:00pm central**
8/20/15: Commenting (all)	January, May & October: High-Level Overview
8/26/15: Workspace Management (for chairs)	February, April, July, October: Workspace Management
9/16/15: Retrieving Comments/Posting Resolutions (for chairs)	March, August: Balloting & Commenting
9/30/15: Workspace Management (for chairs)	Retrieving Comments/Posting Resolutions available upon request
10/14/15: Workspace Management (for chairs)	
10/28/15: Workspace High-Level Overview (new users)	Specialized training available upon request.

2015 Annual Activity Report Information to be Provided through Workspace

With the close of 2015 nearing, work on the 2015 Standards Committee Report of Activities is about to begin. The first step is contacting all working group, subcommittee, and consensus committee chairs with a request to provide a report of activities for the year. Working group and subcommittee chairs are also asked to verify their groups' rosters. This will be the first year that Workspace will be used to send notifications and for chairs to provide information.

Workspaces Created for ANS Members to Provide Input to ISO Proposals

An invitation was issued to ANS Standards Committee members through Workspace to join an advisory group to offer comments for use by U.S. Nuclear Technical Advisory Group (NTAG) overall advisors to formulate the U.S. position on proposals from the International Organization of Standardization's Technical Committee (TC) 85, Nuclear Energy, Nuclear Technology, and Radiological Protection. Workspaces were created for each of the subcommittees under TC 85. This includes SC 2, Radiological Protection; SC 5, Nuclear Fuel Cycle; and SC 6, Reactor Technology. NTAG overall advisors will use their respective site to deposit documents for review and will collect comments to assist in formulating the U.S. position. A good number of ANS Standards Committee members expressed interest and were added to these workspaces. The first document was issued seeking comments on a proposal to initiate an ISO standard on measurement of radioactivity in very low-level waste produced by nuclear facilities under SC 5.

Standards Actions Facilitated Since the ANS Annual Meeting June 2015

The following standards projects were initiated/PINS Submitted (1):

- ANS-30.1, 201x, "Integration of Risk-Informed, Performance-Based Principles and Methods into Nuclear Safety Design for Nuclear Power Plants" (new standard)

The following draft and current standards were issued for ballot and public review (6):

- ANS-3.11-201x, "Determining Meteorological Data for Nuclear Facilities" (revision of ANSI/ANS-3.11-2005; R2010)
- ANS-6.3.1-1987; R2007; R201x, "Program for Testing Radiation Shields in Light Water Reactors (LWR) (reaffirmation of ANSI/ANS-6.3.1-1987; R2007)
- ANS-6.6.1-201x, "Calculation and Measurement of Direct and Scattered Radiation from LWR Nuclear Power Plants" (revision of ANSI/ANS-6.6.1-1987; R2007)
- ANS-8.20-1991 (R201x), "Nuclear Criticality Safety Training" (reaffirmation of ANSI/ANS-1991; R2005)
- ANS-8.27-201x, "Burnup Credit for LWR Fuel" (revision of ANSI/ANS-8.27-2008)
- ANS-10.8-201x, "Non-Real-Time, High-Integrity Software for the Nuclear Industry—User Requirements" (new standard)

The following new standards, revised standards, and reaffirmations were approved (7):

- ANSI/ANS-3.11-2015, "Determining Meteorological Data for Nuclear Facilities" (revision of ANSI/ANS-3.11-2005; R2010)
- ANSI/ANS-6.6.1-2015, "Calculation and Measurement of Direct and Scattered Radiation from LWR Nuclear Power Plants" (revision of ANSI/ANS-6.6.1-1987; R2007)
- ANSI/ANS-8.27-2015, "Burnup Credit for LWR Fuel"—approval pending (revision of ANSI/ANS-8.27-2008)
- ANSI/ANS-10.8-2015, "Non-Real-Time, High-Integrity Software for the Nuclear Industry—User Requirements"—approval pending (new standard)
- ANSI/ANS-57.1-1992 (R2015), "Design Requirements for Light Water Reactor Fuel Handling Systems" (reaffirmation of ANSI/ANS-57.1-1992; R2005)
- ANSI/ANS-59.51- 1997 (R2015), "Fuel Oil Systems for Safety-Related Emergency Diesel Generators" (reaffirmation of ANSI/ANS-59.51-1997; R2007)
- ANSI/ANS-59.52-1998 (R2015), "Lubricating Oil Systems for Safety-Related Emergency Diesel Generators" (reaffirmation of ANSI/ANS-59.52-1998; R2007)

The following standards were published/are in production (5):

- ANSI/ANS-2.30-2015, “Criteria for Assessing Tectonic Surface Fault Rupture and Deformation at Nuclear Facilities” (new standard)
- ANSI/ANS-3.11-2015, “Determining Meteorological Data for Nuclear Facilities” (revision of ANSI/ANS-3.11-2005; R2010)
- ANSI/ANS-6.6.1-2015, “Calculation and Measurement of Direct and Scattered Radiation from LWR Nuclear Power Plants” (revision of ANSI/ANS-6.6.1-1987; R2007)
- ANSI/ANS-8.27-2015, “Burnup Credit for LWR Fuel”—approval pending (revision of ANSI/ANS-8.27-2008)
- ANSI/ANS-10.8-2015, “Non-Real-Time, High-Integrity Software for the Nuclear Industry—User Requirements”—approval pending (new standard)

International Organization of Standardization (ISO)/Technical Committee (TC) 85/Subcommittee (SC) 6, Reactor, Technology Report

The ANS took over as secretary to ISO/TC 85/SC 6 in January of 2013. Standards staff coordinated meeting details and hosted the SC 6 meeting in conjunction with the 2015 ANS Annual Meeting in June at the Grand Hyatt San Antonio. Representatives from Canada, France, Germany, Republic of Korea, and the United States were in attendance. The subcommittee received status reports on eight international standards in development and discussed proposals from Germany, Republic of Korea, and the United States. Since the June 2015 meeting, an additional project was approved and is being initiated. Four additional projects are in consideration.

ATTACHMENT 7

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Regulatory Guidance System (Database): Status of Development

NRC/RES/RGGIB
Harriet Karagiannis

Nuclear Energy Standards Coordination Collaborative (NESCC)

October 13, 2015

NESCC Development Efforts

- In 2011 NRC led development of a standards database for NESCC; joint effort by NRC/NIST/DOE
- Initially funded by NRC with a grant to NIST; ANSI later provided a summer student under NIST supervision to complete the task
- Product was a MS Access database that was posted on the NESCC web site in 2013; reports include which standards referenced in NRC Regulatory Guides

Purpose of the Regulatory Guidance System (RGS)

- NRC's goal is to develop a searchable relational database to catalog citations of consensus standards and various NRC guidance documents

- The database is intended to be used to identify where standards of various Standard Development Organizations (SDOs) are cited in NRC regulatory documents, and which version of the standards

- The database is also intended to be used by the NRC staff to ensure that regulatory documents are up-to-date in order to support licensing and inspection missions.

Status of RGS

- The NRC (RES/DE/RGGIB) has continued development with NRC funding for the RGS using a commercial contractor
- NESCC database has been incorporated in the RGS
- Status of development:
  - Phase 2 completed - Includes standards in Regulatory Guides and Reactor Standard Review Plans (SRPs)
  - Phase 3 by end of 2015 - Adding NRC Inspection Manuals and Procedures, Generic Communications, and Interim Staff Guidance (ISGs).

Link to Reports on NRC External Web Site

- Link to web site: http://www.nrc.gov/about-nrc/regulatory/standards-dev/consensus.html

- Steps to get to the external website:
  - Go to the main NRC webpage
  - Select “Public site”
  - Click on tab that says “How We Regulate”
  - Select Standards Development
  - Click on “Consensus Standards Used by NRC”

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Examples of Reports from RGS

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

RGS questions contact:
Harriet Karagiannis, NRC
301-415-2493
Harriet.Karagiannis@nrc.gov

ATTACHMENT 8

Associate Member Log (Updated 10-28-15)

	Name	Email	Solicitation or Random	Date VF Rec'd	PLACEMENT	COMMENTS
1	Chelsea Collins	chelseatcollins@ufl.edu	Student Section Solicitation 2014	8/13/2014	8.3	
2	Joseph (Joe) Kopacz	jkopacz@iastate.edu	Student Section Solicitation 2014	8/12/2014	3.13	
3	Margaret Kurtts	mkurtts@vols.utk.edu	Student Section Solicitation 2014	8/12/2014	JCNRM SC/SM	
4	Cailyn Ludwig	ludwig7@purdue.edu	Student Section Solicitation 2014	8/12/2014	3.14	
5	Benjamin (Ben) Prewitt	bjp2n4@mst.edu	Student Section Solicitation 2014	8/12/2014	20.1	
6	Dylan Robideaux	drobi825@gmail.com	Student Section Solicitation 2014	7/24/2014	8.7	
7	Manit Shah	manitshahd@gmail.com	Student Section Solicitation 2014	8/12/2014	6.4.3, 57.2 & 57.3	Responded to survey that he remains interested but that the 6.4.3 WG had not been active. His interested changed slighly and was added to 57.2/57.3 on 9/9/15.
8	Manish Sharma	mksrkf@mst.edu	Student Section Solicitation 2014	8/12/2014	6.4.3	
9	Gregory Suehr	gregory.suehr@gmail.com	Student Section Solicitation 2014	8/12/2014	57.2/52.73	
10	Stanley (Stan) Tackett	stackett@insight.rr.com	Student Section Solicitation 2014	8/12/2014	6.4.2	
11	Mara Watson	marawtsn@gmail.com	Student Section Solicitation 2014	8/12/2014	ESCC	
12	Tim Stout	timothy.stout@exeloncorp.com	Random	8/27/2014	ANS-58.9	
13	Mihai Diaconeasa	diacon@ucla.edu	Random	5/7/2014	ANS-30.2	
14	Matthew Hertel	hertelm@onid.oregonstate.edu	Random	3/31/2015	ANS-59.3	

ATTACHMENT 9

NRC Summary Status of NESCC Activities

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
License Renewal Attachments to 11/10/15 Minutes -- Page 38 of 171	Light Water Reactor Sustainability (LWRS) Subsequent License Renewal (SLR) Aging management Programs (AMPS)	May 2015 NESCC meeting - Jeremy Busby provided a list of technical areas where standards need to be developed for aging plant monitoring Potential technical areas include: • reactor pressure vessel (ASTM) • thermal aging, core internals, piping (ASME), • environmentally assisted fatigue (ASME and EPRI), • concrete (ACI & AISC), • cable degradation and monitoring, particularly for radiation effects and other environmental factors (IEEE)	The following recommendations were made: <u>Reactor pressure vessel and low-alloy steels:</u> ASTM and ASME should revise existing standards with additional correlations and predictions of: • embrittlement following irradiation, • thermal ageing embrittlement considerations • Methodologies for complex fracture mechanics at locations like, nozzles, etc. <u>*Status:*</u> ASTM revised standards E185, E2215, & E900 in 2015. ASTM committee E10.02 is developing a standard on thermal ageing. ASME is revising Code Case N-830. <u>Piping:</u> ASME should continue their efforts to revise existing standards to consider: • Environmentally-assisted fatigue • Mechanism of crack initiation <u>Concrete:</u> ACI should consider developing standards that address: • ASR (RILEM committee currently working), • Irradiation effects - Possible that research and analysis could rule out this as an age related degradation mechanism that needs to be addressed in subsequent license renewal , and • Creep - May not be an applicable age related	ASTM – possible standards: • Reactor pressure vessel and low-alloy steels • Piping ASME – possible standards: • Reactor pressure vessel and low-alloy steels • Piping • NDE techniques to better implement AMPs • Environmental specific qualification methodologies for weld repair AWS – possible standard: • Environmental specific qualification methodologies for weld repair ASNT– possible standards: • NDE techniques • NDE techniques to better implement AMPs ACI – possible standards: • ASR • Irradiation effects • Creep • Published ACI standards	**SDO Champions Needed** • Have or will the SDOs publish the standards recommended in the "What is Status?" column? • What is the anticipated publication or completion date? • Will the publication be timely to support subsequent license renewal submissions to be reviewed by the NRC?

			degradation mechanism if licensees can demonstrate that the concreate temperature is maintained at a temperature less than 150F • The NRC reviewed the NESCC Concrete Repair Report and identified 21 new or revised standards (ACI & ASME) - The NRC ranked 10 of the 21 standards identified in the report as high having high significance - Only 4 of the standards are endorsed in NRC Regulatory Guides - The NRC should consider endorsing standards that are of high significance in NRC documents - See Table 1 (separate document) for specific details of NRC review <u>Cables:</u> • IEEE should prepare a standard that defines an acceptable method to estimate the remaining useful life ASME and ASNT (RUL) curves for cables - IEEE standards (Cable qualification and aging standards) that might be affected are: IEEE Std 323 Equipment Qualification, IEEE Std 383 Class 1E Electric Cables, and IEEE P1682 Fiber Optic Cable • The NESCC report on cables identified that IEEE 323-203 and 1202-2006 should be endorsed in RGs 1.189 and 1.89 - Based on the 5-year assessment of RG 1.89, the NRC plans to consider endorsement of IEEE 323 – 2003 by December 2016. - The NRC staff plans to revisit the updating of RG 1.189 in the fourth quarter of calendar year 2015. At that time consideration will be given	identified in the Concrete Report that are not currently endorsed by the NRC recommend where they should be endorsed? IEEE – possible standards: - Estimate remaining cable life ✓ IEEE Std 323 Equipment Qualification ✓ IEEE Std 383 Class 1E Electric Cables ✓ IEEE P1682 Fiber Optic Cable NRC – Actions - The NRC is evaluating ASTM E185 and E2215 for use in 10 CFR 50 Appx. H. - The NRC is reviewing ASTM E900 and may cite it in Regulatory Guide 1.99. - The NRC assesses the need to update its guidance as part of periodic reviews, which includes consideration of anticipated licensing actions that warrant commitment of resources to review new	

			to endorsing IEEE 1202-2006. NDE techniques: ASME and ASNT standards could be developed that use improved NDE methods to better implement Aging Management Programs (AMPs) used by licensees during the supplemental license renewal periods. Mitigation techniques: SDOs could develop standards that mitigate age related degradation; possible standards are: • ASME and AWS qualification methodologies for weld repair that are applicable for the specific environment • IEEE cable rejuvenation	or revised standards.	

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
NESCC Task Group Reports	NESCC reports discussed status and needs (concrete, concrete repair, polymer piping, welding, and buried cable)	Concrete Report	Recommendations in the Concrete Report were made to: • Improve the clarity of the documents and minimize real or perceived inconsistencies between documents. • Numerous research recommendations were made can be done to improve cost-effective construction of safe and durable nuclear power plants. • New technologies available in the commercial marketplace (bridges to buildings) should be examined and adopted on a fast track as appropriate for nuclear power plants to increase constructability and reduce costs. • A primary recommendation is that the NRC needs to implement a process to ensure that the most up to date standards and codes available are used in the Regulatory Guides and other documents.	• Revisions to ACI 301, 311, 318, 349, 351, 359, and 447 appear appropriate. The initiation and schedule of this work is unknown. • The status of addressing the ASCI, ASME, and ASCE is unknown nor is it known if these SDOs have assumed ownership of the recommendations provided in the Concrete Report. • EPRI and the NRC are performing research on some of these recommended topics, but a crosswalk map of research and the Concrete Report has not been developed. • The NRC assesses the need to update its guidance as part of periodic reviews, which includes consideration of anticipated licensing actions that warrant commitment of resources to review new or revised standards	**SDO Champion Needed or Clarified on portions of the Concrete Report.** **SDO should provide a status on progress and resolution of the Concrete Report recommendations.**

				• In the 4th quarter 2016, NRC anticipates issuing a revised RG 1.142 that evaluates the endorsement of ACI 349-2012 • NRC is preparing DG-1304, which uses N690 and N9. The new RG is anticipated to be issued by 3rd quarter 2016	
		Concrete Repair Report	The Concrete Repair Report provided recommendations that SDOs, NRC and researchers should implement to improve the knowledge related to concrete repair in nuclear power plants. These included: • The NRC should update its regulatory guidance to eliminate obsolete versions of standards • Develop a concrete repair code for nuclear structures, similar to ACI 562 (necessary to define the unique characteristics for repair of nuclear structures) • Perform research on the long term effects of radiation and temperature on concrete • Develop a standardized process for the NRC to implement pre-approved new concrete technologies and materials, similar to that used by the DOT. • Develop models for prediction of service life or repairs, especially taking into account the interaction with the concrete substrate, are non-existent. Also, there is a need for models for evaluation of remaining service life of a damaged structure. • Develop standard test methods to evaluate a	NRC: • The NRC assesses the need to update its guidance as part of periodic reviews, which includes consideration of anticipated licensing actions that warrant commitment of resources to review new or revised standards. • The status of SDO response to the other Concrete Repair Report recommendations is not currently understood, however some activities may be currently implemented as defined in various industry	**SDO Champion(s) Needed, should develop a crosswalk of SDO Champion and defined actions that address the report recommendations**

		Polymer Piping Report	structure for repair, quality control and quality assurance are few or nonexistent. Thus, more research and development on this topic should be fostered. The Polymer Piping Report identified gaps that could be filled: • In some cases, the gaps require only a better specification of procedures to greatly increase the relevance and quality of the existing standard. • In other cases, a program to address gaps in the current understanding of HDPE performance must be addressed through the development of new materials science and measurements. • The PPTG has provided guidelines to address standards gaps and the increased performance requirements for nuclear piping. • The implementation and prioritization should be developed between operators, regulators, and SDO organizations. • This is especially true where the gaps are related to increasing material performance or acceptance requirements rather than the development of a new standard. • Increases in performance and acceptance requirements are often explicitly stated within the code in order to maintain broad applicability of standards. • This can reduce efficiency since it requires maintenance of a significant database of documents related to specification, design, and quality assurance/quality control.	activities. • The ASME and NESCC developed a road map to address NRC concerns • The ASME Code approved Code Case N-755, but the NRC has not fully approved it due to technical concerns. • The NRC has conditionally approved Code Case N-755 with conditions on design, fusion and NDE.	**ASME is the SDO Champion**

Attachments to 11/10/15 Minutes -- Page 44 of 171		Welding Report	• While this standards review was focused on HDPE piping, the gaps identified should apply to other non-metallic piping materials and systems. • The main lessons learned were that many of the questions developed in a code case can be answered when validated technical data is available to the industry and regulators concerning the specific materials, intended design specifications, and environmental conditions. • This technical data is crucial for the development of the technical basis for design and supporting the development of code requirements. • The best method to generate this data efficiently and in a manner that is accepted by material manufacturers, operators, and regulators is through the development of current and relevant standards. The Welding Report provided the following recommendations: • Harmonize procedures and welder qualifications (ASME & AWS) • Expand the options for welding engineer certification within the U.S. (ASME & AWS) • Expand the personnel certification of welding supervisors (ASME & AWS) • Expand the allowed application of phased array ultrasonic testing (PAUT) inspection within codes (AWS) • Make more repair decisions based on fitness-for-service assessments (AWS &ASME) The Cable report recommended: • Revising RGs 1.89 and 1.189 to incorporate	The report recommended SDO Champions (ASME or AWS) for each topic. It is unknown if ASME and AWS have accepted the SDO Champion roles and what is the current resolution status of recommendations. • Updates to RGs 1.89 and 1.189 identified in License Renewal section. • RG 1.131 has been withdrawn and superseded by RG 1.211	**SDO Champions are needed**

		Cable Report	current versions of IEEE standards • Revising RG 1.218 to more clearly distinguish between techniques that can be used to give an indication of the current condition of a cable and those techniques that may be useful for condition-based qualification and projection of life. (Many times the techniques listed find installation damage or poor workmanship of splices and terminations even after years of installation.) • Provide more guidance to existing nuclear plants that are committed to RG 1.131 with regards to applying the requirements of RG 1.211 to their plants for new cables being procured or for life extension applications • Performing research on cable aging, cable aging characterization, LSZH cables, water submersion, activation energy, correlation between accelerated aging conditions and natural aging conditions • Developing definition of low and medium voltage		**SDO Champion Needed** **Industry Research needed (EPRI or IEEE?)**

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)

Operating Licensed facilities (Reactors and Fuel)
 	
Attachments to 11/10/15 Minutes -- Page 46 of 171
	Industry is requesting the use of polymer piping at operating plants
	
	_____
	Counterfeit, fraudulent and suspect items (CFSI)
		ASME has a committee that is developing a Code Case on the use of high density polyethylene (HDPE) polymer piping
		
		_____
		NRC has internal cross-office committee reviewing needs.
		• Potential technical areas include standards needed to test and confirm parts are not counterfeit
		• May require rulemaking
			Polymer piping
			- ASME ST, LLC took lead for monthly telecons with multiple organizations;
			- EPRI funding research to address roadmap issues
			  - Workshop on an HDPE Roadmap for Current and Future Service (April 2013), EPRI reported that unresolved issues included:
			  - Essential Variables for fusion process
			  - Performance demonstration requirements
			  - Non-Destructive Examination
			  ○ Requirements for volumetric inspection of joints
			  ○ Acceptance criteria for volumetric flaws
			  ○ Qualification requirements for inspection personnel
			_____
			Beginning in 2009, the staff noted increasing CFSI activity in the industrial (non-nuclear) supply chain. The NRC's Office of the Inspector General (OIG) issued an audit report on September 28, 2010, OIG-10-A-20, "Audit of NRC's Vendor Inspection Program," that referenced many of the same non-nuclear CFSI events that the NRC staff were also monitoring. The OIG audit report recommended that the staff develop a formal agencywide strategy to monitor CFSI.
				The ASME and EPRI are leading the effort to develop a basis for incorporation into the ASME Code with a sufficient technical basis that would permit the NRC to endorse the Code Case.
				
				_____
				None
					In progress
					Revisions of the ASME Code to adopt Mandatory Appendices and new Code Cases are in development with NRC participation. EPRI and the ASME ST, LLC are providing research results to support the Code development.
					
					_____
					Review completed, no further NESCC actions recommended - Completed

		or RG endorsement to adopt new standards	SECY-15-0003, Staff Activities Related to Counterfeit, Fraudulent, and Suspect Items, document the multi-year effort to detect and prevent counterfeit, fraudulent, and suspect items. In a joint effort with NEI and EPRI, a guidance document was developed for use by licensees to aid in preventing the introduction of CFSIs into nuclear facilities. After engaging other Federal agencies, industry organizations, and public stakeholders, the staff developed 19 actions to assess and enhance processes to address counterfeit, fraudulent, and suspect items. The staff presented these actions in SECY-11-0154, which includes information about the staff's use of working groups to identify and assess current practices, evaluate potential vulnerabilities, and develop planned actions. Of these 19 planned actions, 14 have been completed, and the remainder will be completed by December 2018. The NRC staff members participating on the NESCC reviewed the activities discussed above, and, in discussion with other NRC staff involved with the CFSI activities, concluded that identification of needed standards to assist in the prevention of CFSI components is not practical, as unlimited potential CFSI components could exist. Furthermore, most of the test methodologies that might be used for detecting CFSI components at receipt are likely already defined as part of existing manufacturing process and may be already defied in existing standards. The NRC staff therefore concludes that it is not practical to recommend to SDOs which additional standards might be created, as the need cannot be predicted.		

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
New Reactors Advanced Reactor Designs	<u>Small Modular Reactors</u> • CORDEL report on SMRs • SMR Roadmap (a.k.a., Strategic gap analysis) led by ASME ST, LLC • IAEA SMR Regulators' Forum	Industry's CORDEL report on SMRs identified areas where there might be shortcomings in the standards used to design and construct SMRs. The ASME SMR Roadmap report was a more in-depth study to identify any potential ASME Codes and Standards issues that may impede the effective and timely SMR licensing. The IAEA SMR Regulators' Forum is similar to the SMR Roadmap process.	The ASME SMR Roadmap report was published in June 2014. Generally, the SMR vendors believe that their designs can comply with current ASME Codes and Standards because they are based on existing and licensed light-water-reactor (LWR) technology. However, this SMR Roadmap discusses Code areas in the ASME Boiler & Pressure Vessel Code (BPVC) and ASME Operation and Maintenance of Nuclear Power Plants Code (OM Code) where potential differences between vendors and NRC regarding the proper interpretation and application these Code requirements may present licensing issues. Particularly, this SMR Roadmap discusses potential issues in these codes. Potential issues that are identified include: Section III: • The acceptability of the Section III fracture toughness requirements exemption (paragraph NB-2311) for small parts used for Class 1 components should be reviewed by the Section III for applicability to SMR designs. • The rules of Subsection NE for the construction of metal containment vessels (Class MC) may need to be revisited for applicability to certain SMR designs. Section XI: • The Section XI Inservice Inspection (ISI) exemption for small Class 1 components and piping should be evaluated by Section XI for their applicability to SMRs. • The inspection of SMR reactor vessels may be problematic in some designs due to compactness of	To address these potential issues, the SMR Roadmap recommends that the vendors more thoroughly evaluate their designs against both BPVC and OM Code, and NRC requirements, and engage the ASME Code Committees early in the process to develop appropriate requirements if issues need resolution. This would provide a technical basis, developed through ASME's American National Standards Institute (ANSI)-approved Code consensus process that could be used to support their positions when engaging with the NRC during the design certification licensing process. In addition, some of these potential issues can be addressed through the development of ASME Code Cases. Currently, Code Cases are being developed that will address SMR extended fuel cycle issues. Sec XI passed Code Case N-	**ASME is the SDO Champion** Current status feedback from the ASME is needed to understand the progress being made on its topic.

	Digital instrumentation and Controls (I&C)	May 2015 - Mr. Rich Reister was asked to review the list of I&C areas contained in NESCC 15-0011 and pair them to an appropriate SDO for development (a	design and limited accessibility. • The soon-to-be-published (2015) Section XI, Division 2, "Reliability and Integrity Management" (RIM) program may benefit SMR ISI programs. However, reliance on the Division 2 methodology might cause an initial delay in the licensing process since it is a new approach to ISI not yet approved by the NRC. • SMR pressure vessels clad on both sides may present issues for application of Section XI, Subsections IWE and NB. OM Code: • Periodic testing requirements of the OM Code presents an issue to the (a) NuScale design, since opening the reactor vessel valves would produce a loss-of-coolant accident, and (b) mPower design, which has an extended fuel cycle. NESCC Identified that current ASME Code is not consistent with the industry request for the NRC to consider a four-year refueling interval for advanced reactor designs. Knowledge of what is occurring in the IAEA SMR Regulators' Forum is limited. No current status is provided in this analysis. I&C "Standards" that typically come in the form of "Guides", "Recommended Practices", and "Standards", through: • IEEE (Power Engineering Society, Nuclear Power Engineering Committee and various subcommittees), • American Nuclear Society, and	842, "Alternative Inspection Program for Longer Fuel Cycles". This addresses the 4 year fuel cycle proposed by industry. As if this date, it is not published by ASME, nor endorsed by the NRC. IEEE – Possible standard • Main Control Room • Computer base procedures • Outage Control Centers	**SDO Champion Needed**

		roadmap).	• Periodically, as requested, through the IEC and IAEA (though not formal standards and guides, the "guidance" from IAEA is used by many as standards). Standards could be developed, revised, and maintained using the results of research stemming from our LWRS activities in the following areas: • Main Control Rooms: a) Human Factors Engineering for NPP Control Rooms; b) Methods and Measures for Verification and Validation of Critical Operator Functions in NPP Control Rooms; c) Method(s) for conducting Human Reliability Analysis for Nuclear Power Generating Stations (special emphasis on methods for collecting data from plant simulators) - e.g., updates to IEEE-1082 • Computer based procedures: a) Updates to existing IEEE standard on computer based procedures and IEC standards; b) Perhaps a new standard on "content" management for interchange of data among systems to support computer based systems. • Online Monitoring: a) ISA Standards are needed for online monitoring especially if industry is going to seek regulatory relief for calibration (e.g., extend calibration intervals), inspections, etc.	ISA – Possible standard • Online Monitoring SDO – TBD - Possible standard • Cost Benefit Methods • Digital Architecture	

			b) This may be the biggest issue for standards in the entire pathway - also, probably the most technically contentious. • Outage Control Centers: a) Most of what is currently envisioned in outage control centers is covered by current standards (e.g., IEC standards for main control centers, IEEE standards on Human Factors engineering, etc.), b) The distributed nature of command and control due to work activities during outages may necessitate some revision to existing standards to account for distributed, asynchronous management of safety-critical activities not currently addressed under existing standards. More informal standards are likely to be developed as well, such as: • Cost Benefit Methods: a) Valuing advanced digital technologies for use in existing nuclear power plants. i. This would be based on the work that EPRI is doing with Scott Madden and Associates with pilot project technologies at individual utilities. ii. Need to have some peer review and updates to the first applications. iii. This could become a "standard" approach to how the industry values and justifies the benefits of introducing digital technologies into existing plants.		

	Multi-National Design Evaluation Program (MDEP) efforts and next steps	No information currently available	• Digital Architecture: a) This work is being done with a group representing a broad cross section of the nuclear industry and will propose a standard set of requirements for digital architectures needed for the Information b) Technology side of the house in order for digital technologies to be deployed in a way that enables them to leverage their potential value in their target settings.		**NRC to Get More Information**

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
Other Topics	Current Fuel Design	The NRC has written two draft regulatory guide in support of draft rulemaking on 10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors.	Draft regulatory guides are publicly available: • DG 1261, Conducting Periodic Testing for Breakaway Oxidation Behavior • DG 1262, Testing for Post Quench Ductility A related rule is being drafted.	These draft regulatory guides may identify opportunities for consensus standards	**SDO Champion Needed**
	Advanced Fuel Design	All-metal uranium fuel	All-metal uranium fuel is able to operate at lower temperatures and therefore, might be able to operate at higher power levels. Are the existing standards adequate for this development?	Unknown	**SDO Feedback Sought**
		Accident Tolerant Fuel	The DOE was/is performing research on Accident Tolerant Fuel, but this information is not at a mature state to support development of standards	The maturity level of this subject is insufficient to develop standards	**SDO Feedback Sought**

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
Fukushima Related Topics	• Natural external hazards or natural phenomena hazards (NPH) • 10-year probabilistic site re-evaluations • Seismic analysis and design • Multiple-unit staffing	On November 30, 2012, U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting to discuss processes and priorities for development of voluntary consensus standards related to the Fukushima Dai-Ichi nuclear power plant accident. Specifically, the American Nuclear Society (ANS) presented a proposal to develop consensus standards based on Tier 3 Near-Term Task Force (NTTF) recommendations.	Only the issue related to enhanced reactor and containment instrumentation was found to be a good fit to the capabilities and timeframe for consensus standards development. A development timeframe of 3-4 years would support the NRC's NTTF activity schedules.	IEEE – – possible standards: • Future updates of IEEE 497 to address design criteria for severe accident monitoring instrumentation channels would be beneficial to the Industry and the NRC. ASME & ANS - possible standards: • The NRC desires coordination with standards development organizations to develop more generalized approaches for assessing concurrent hazards on Seismically Induced Fires and Floods. ANS – possible standards on: • The ANS could support these activities for improved industry consensus standards on Enhanced Reactor and Containment Instrumentation by assisting in the development of	**SDO Champions Needed** By 2016: • Revised IEEE 497 to address design criteria for severe accident monitoring instrumentation channels • ANS develop guidance for Emergency Procedure Guidelines with Severe Accident Management and Extensive Damage Mitigation Guidelines

				consensus standards for severe accident analysis (including the use of best-estimate modeling techniques) to support identification of severe accident equipment needs including instrumentation as well as the analysis and identification of severe accident environment parameters and standardized methods for addressing severe accident equipment survivability analyses. • ANS could also continue to monitor the progress of efforts to integrate Emergency Procedure Guidelines with Severe Accident Management and Extensive Damage Mitigation Guidelines, and from that effort identify any perceived gaps in reactor or containment instrumentation needed by plant operators to effectively transition among the procedures developed out of these guidelines.	

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
Other Topics	EPRI Advanced Nuclear Technologies	At the November 2014 NESCC meeting, EPRI presented a list of its Advanced Nuclear Technology projects (active and planned) cross-walked to where the research results might be adopted by consensus standards. At the May 2015, NESCC meeting, EPRI was asked of it could provide more granularity and identify not only the SDO, but also identify specific standards or committees that might be used to codify the research results.	See attached EPRI table.	Even without the identification of specific standards or committees, SDO could initiate efforts to identify how they might use the research results identified in EPRI's November 2014 presentation.	**SDO Champion Needed**

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
Other Topics	EPRI Advanced Nuclear Technologies	At the November 2014 NESCC meeting, EPRI presented a list of its Advanced Nuclear Technology projects (active and planned) cross-walked to where the research results might be adopted by consensus standards. At the May 2015, NESCC meeting, EPRI was asked of it could provide more granularity and identify not only the SDO, but also identify specific standards or committees that might be used to endorse the research results.	See attached EPRI table.	Even without the identification of specific standards or committees, SDO could initiate efforts to identify how they might use the research results identified in EPRI's November 2014 presentation.	**SDO Champion Needed**

Subject Area	Potential issues that might benefit from the development of a standard	What Actions/Discussions have Occurred?	What is status?	Opportunities for a standard	Next Steps (NRC suggestions)
Risk Related Standards	• Safety classifications of systems, structures and components (SSCs) • Reliability Assurance Program (RAP) • Probabilistic Risk Assessment (PRA) • Risk terminology	• ASME and ANS have discussed safety classifications of SSCs, RAP, PRA, risk terminology • ASME and ANS discussed the development of a risk terminology lexicon	• JCNRM to lead • JCNRM or NRMCC to lead	ASME/ANS (JCNRM or NRMCC) – possible standards: • Opportunity for JCNRM or NRMCC to develop risk terminology lexicon	**JCNRM is the SDO Champion**

Patricia Schroeder

From: Donald Spellman <cso592@att.net>
Sent: Thursday, September 10, 2015 8:23 AM
To: Carpenter, Gene
Cc: George F. Flanagan; Steven Stamm; Patricia Schroeder; Bill Reuland
Subject: Re: Public meeting on 1F and Standards

Gene, I do remember the meeting in November 2012 as Prasad and I made a hard plea for more coordination with NRC on the NTTF recommendations. As time has gone along, the SB kind of wanted to take a wait and see attitude as the industry response was more important as a first reaction than to have the SDOs go running off and create standards that would not be useful to the final outcome of the NTTF decisions for implementation. As you know, a lot has changed since November 2012 with the industry pretty much holding off on a lot of changes for beyond design basis accidents for instance and has embraced the FLEX concept. It may now be a good time to re-look at that issue at the ANS Standards Board so I thank you for your reminder. I have asked the SB (George and Steve) to respond to the issue and keep you informed of the actions if any. Now that you are a voting member of the SB (congratulations by the way) I'm sure you will be quite involved in the outcome.

Regards, Don

Donald J. Spellman
Norris, Tennessee
cso592@att.net

From: "Carpenter, Gene" <Gene.Carpenter@nrc.gov>
To: "cso592@att.net" <cso592@att.net>
Sent: Tuesday, August 11, 2015 3:08 PM
Subject: RE: Public meeting on 1F and Standards

Don,

I was discussing ANS Standards with Carol Moyer (NRC Standards Program Manager) today, and she was relating a need that was identified during a November 2012 meeting on Consensus Standards (meeting summary ADAMS# ML12356A086). Specifically, Near-Term Task Force Tier 3 recommendation on enhanced reactor and containment instrumentation:

> Future updates of IEEE 497 to address design criteria for severe accident monitoring instrumentation channels would be beneficial to the Industry and the NRC. The ANS could support these activities for improved industry consensus standards by assisting in the development of consensus standards for severe accident analysis (including the use of best-estimate modeling techniques) to support identification of severe accident equipment needs including instrumentation as well as the analysis and identification of severe accident environment parameters and standardized methods for addressing severe accident equipment survivability analyses. ANS could also continue to monitor the progress of efforts to integrate Emergency Procedure Guidelines with Severe Accident Management and Extensive Damage Mitigation Guidelines, and from that effort identify any perceived gaps in reactor or containment instrumentation needed by plant operators to effectively transition among the procedures developed out of these

guidelines. A development timeframe of 3-4 years would support the NRC's NTTF activity schedules.

May I impose on you for a status of what, if anything, ANS Standards decided to do with identified need?

Thanks!
Gene

C.E. (Gene) Carpenter, Jr.
NRR International Team Leader
301-415-2983 (Office)
202-579-5155 (Blackberry)
Gene.Carpenter@nrc.gov

ANS Standards ITAAC Interview Summaries
September / October 2015

Background

The need and ability to produce an ANS ITAAC standard was discussed between George Flanagan and Steve Stamm on September 9, 2015. It was agreed that Steve Stamm would discuss availability of completion experience and the need for an ITAAC standard with licensing managers from a new AP-1000 plant and an SMR company. The following is a summary of those discussions.

Brian Bedford, CB&I, VC. Summer 2 & 3- 9/10/2015

ITAAC Completion status:

- Approximately 35% of ITAAVCs have been started and are in Process:
- Approximately 1.5% have been summited to NRC for approval

Closure process is going smoothly

Adequacy of NEI Documents

- NEI 0101 addresses ITAAC closure and is very heavily relied upon.
- NEI 15-02 addresses ITAAC specification for future plants. It incorporates the lessons learned in the ongoing ITAAC programs. It applied to water cooled reactor plant including SMRs.
- The NEI documents provide adequate background and guidance for existing and new water reactor programs.

Areas that may need improvement:

- Entire NRC inspection and review program is formatted around ITAACs. Inspections are significantly deeper in depth than that required to prove the ITAACs.
- Vendor interface needs improvement to assure that the development of data needed for ITAAC program is fully documented and referenced.

Carl Dumsday, NuScale ITAAC Manager 10/2/2015

ITAAC Completion status:

- ITAAC are being prepared and discussions are ongoing with the NRC staff.

Adequacy of NEI Documents

- NEI guidelines address ITAAC preparation for SMRs and have been very useful
- Lessons learned focus is that ITAAC have to be clear and limiting such that the boundaries of NRC inspections are detailed. closure and is very heavily relied upon.
- NEI provides general guidance that could be used with non-water reactors but it is not sufficient at this time to cover more than a small percentage of the total ITAAC.

Areas that may need improvement:

- Incorporation of future lessons learned into ITTAC guidance
- Strategy for bounding inspection activities needed to achieve ITAAC completion
- ITAAC for non-water reactors – however, preparation of additional ITAAC guidance requires knowledge of the design

Thomas Marcille, Vice President & Chief Nuclear Officer, HOLTEC – 9/22/2015

Holtec is not applying the 10CFR52 process so that ITAAC are not applicable.

Licensing Application Status for SMRs and Advanced Reactors (from NRC website)

Design	Application Type	Applicant / Cpntact	Expected Submittal Date
NuScale	Design Certification	NuScale Power, LLC / Kent Welter	2nd half 2016
B&W mPower™	Design Certification	Babcock & Wilcox (B&W) mPower, Inc. Sandra Sloan	TBD
Holtec SMR-160	Design Certification	SMR LLC, a Holtec International Company	4th Q 2016
Westinghouse SMR	Design Certification	Westinghouse Electric Company	TBD
Clinch River Site Roane County, Tennessee	Early Site Permit	Tennessee Valley Authority (TVA)	TBD
Advanced Non-LWR Activities	N/A	N/A	

Patricia Schroeder

From: Patricia Schroeder
Sent: Monday, July 20, 2015 2:32 PM
To: Andy Smetana (andy.smetana@srnl.doe.gov); Bernie Till (william.till@srs.gov); Bill Reuland (wreuland@aol.com); Calvin M. Hopper (hoppercm@comcast.net); Carl Mazzola (carl.mazzola@cbifederalservices.com); Chuck Moseley (longgray65 @nc.rr.com); David Sachs (david_sachs_d409@msn.com); Donald R. Eggett (donald.eggett@amecfw.com); Donald Spellman (cso592@att.net); Ed Wallace (ed.wallace@gnbcassociates.com); George Flanagan (flanagangf@ornl.gov); James O'Brien (James.O'Brien@hq.doe.gov); Jeffery Brault (jeff_brault@yahoo.com); Jim August (JKAUGUST@southernco.com); Jim RILEY (jhr@nei.org); Mathew Panicker (mathew.panicker@nrc.gov); Prasad Kadambi #2 (npkadambi2@verizon.net); Robert D. Busch (busch@unm.edu); Robert J. Budnitz (budnitz@pacbell.net); Stanley H. Levinson (Stanley.Levinson@areva.com); Steven Stamm (ssn617@comcast.net); Tina Taylor (TTaylor2@epri.com); William M. Turkowski (turkowwm@westinghouse.com)
Subject: Feedback on Standard for ITAAC writing template

Dear Standards Board Members,

The below email was forwarded to me by Bill Turkowski in response to an action item assigned at the recent Standards Board meeting for feedback about a potential ITAAC standard. The below discussion is provided for your information.

Regards,

Pat

Patricia Schroeder
Standards Manager
American Nuclear Society
555 N. Kensington Avenue
La Grange Park, IL 60561

Phone: 708/579-8269
Fax: 708/579-8248
Email: pschroeder@ans.org

American Nuclear Society

From: Bedford, Brian J
Sent: Saturday, July 18, 2015 11:10 AM
To: Russ, Paul A

Cc: Sisk, Robert B.; Easterling, Rick; Harper, Zachary S; Turkowski, William M.; McIntyre, Brian A
Subject: Re: ANS Standards Board - Standard for ITAAC writing template

I agree with Rob. The Standardized ITAAC process laid out in NEI 15-02 essentially does exactly what the action item is asking. So an ANS Standard would likely be redundant.

They are still working through the NRC endorsement process, but it has good momentum.

Russ Bell and Kati Austgen are the primary contacts for that at NEI.

-Brian Bedford-

On Jul 18, 2015, at 9:58 AM, Russ, Paul A <russpa@westinghouse.com> wrote:

Rob,
I defer to and recommend we get Brian Bedford's input.
Thanks,
R/
Paul

From: Sisk, Robert B.
Sent: Friday, July 17, 2015 8:11 AM
To: Russ, Paul A; Harper, Zachary S; Turkowski, William M.
Cc: Easterling, Rick; Sisk, Robert B.
Subject: FW: ANS Standards Board - Standard for ITAAC writing template

Bill - NEI has been working with the NRC and the industry on a "ITAAC Standardization Program." This program has the attention and in many areas the apparent support if the NRC. Marc Williams participated on the Working group developing the standardized ITAAC originally for the SMR but the program has evolved and is applicable to Large light water reactors. This program is now being used to support KHNP's APR1400 Design Certification Application. The NEI Guidance along with Westinghouse's AP1000 construction experience leads me to conclude that there is no need for an ANS standard at this time

Paul/Zach - FYI. Any additional Comments ?

Rob

From: Turkowski, William M.
Sent: Friday, July 17, 2015 7:58 AM
To: Sisk, Robert B.
Cc: Turkowski, William M.
Subject: ANS Standards Board - Standard for ITAAC writing template

Rob, I am a member of the ANS standards board and was tasked with the following action.

: William Turkowski to check with the Westinghouse licensing department for their input on whether there is value in a standard for new designs that would provide an ITAAC writing template or where in the ITAAC process would benefit from standardization. Additionally, input to be sought from NEI.
Due Date: September 1, 2015

Can you please let me know what you think here please?

Thanks,

Bill Turkowski
Product Manager, Systems and Equipment Engineering
PWR Engineering Products

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ATTACHMENT 11

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 14-13, Use of Industry Operating Experience for Age-Related Degradation and Aging Management Pro	9-Jan-15	The purpose of this guideline is to provide an industry approach for the review and sharing of industry operating experience (OE) pertaining to age-related degradation of passive, long-lived components with the goal to promote effective aging management programs (AMPs) acr...	ANS-XX		Potential New Standard		
NEI 14-12, Aging Management Program Effectiveness, Revision 0	2-Mar-15	The purpose of this guideline is to provide a standard approach for the self-assessment process for periodically evaluating the effectiveness of aging management programs (AMPs) (as committed to and described in the UFSAR for plants with a renewed license) to ensure on-going p...	ANS-XX		Potential New Standard		
NEI 14-11, Implementing and Operating a Joint Information System, Revision 0 (November 2014)	13-Nov-14	NEI 14-11 provides guidance on how to implement a Joint Information System (JIS). Together with a traditional Joint Information Center (JIC), a JIS expands an organization@s ability to respond more effectively during a nuclear energy facility event. The JIS concept is derived...	ANS-XX		Potential New Standard		
NEI 14-06, Developing an Organizational Approach to Beyond Design Basis Event Planning and Response	24-Sep-14	The purpose of this guidance is to: Provide an approach for the assessment of programmatic demands placed on organizations as a result of industry and regulatory responses to Beyond Design Basis events. Establish a means of developing an organizational structure whic...	ANS-XX		Potential New Standard		
NEI 14-05A, Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurem	6-Mar-15	The purpose of this guidance is to describe an acceptable approach for using laboratory accreditation by Accreditation Bodies (ABs) that are signatories to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) (referred to as the IL...	ANS-XX		Potential New Standard		
NEI 14-02, Implementation Guidance for 10CFR Part 37, Physical Protection of Category 1 and 2 Quanti	18-Mar-14	On May 20, 2013, NRC issued 10 CFR Part 37 for the security requirements for the use and transportation of Category 1 and Category 2 quantities of radioactive material. Category 1 and Category 2 quantities are listed in Appendix A of this document. Nuclear power plants are...	ANS-XX		Potential New Standard		
NEI 13-10, Cyber Security Control Assessments, Revision 1 (September 2014)	21-Oct-14	This document provides guidance licensees may use to streamline the process for addressing the application of cyber security controls to those digital assets that a site specific analysis, performed in accordance with the requirements of 10 CFR 73.54 (b)(1), determined req...	ANS-XX		Potential New Standard		
NEI 13-02 - Industry Guidance for Compliance with Order EA-13-109: BWR Mark I & II Reliable Hardened	7-Nov-13	The purpose of this guidance is to assist nuclear power reactor licensees with the identification of measures needed to comply with the requirements of Order EA-13-109, @Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under ...	ANS-59.2				
NEI 13-01, Reportable Action Levels for Loss of Emergency Preparedness Capabilities, Revision 0 (Jul	20-Nov-13	The purpose of this technical report is to provide a recommended and uniform approach that will promote consistent application of the event reporting guidance associated with a loss of emergency preparedness capabilities.@ To that end, this document provides a set of gener...	ANS-3.8.X				
NEI 12-16, Guidance for Performing Criticality Analyses of Fuel Storage at Light-Water Reactor Power	21-Apr-14	This guidance describes acceptable methods that may be used by industry to perform criticality analyses for the storage of new and spent fuel at light-water reactor power plants, in compliance with 10 CFR Part 50. The guidance provided herein is applicable to new fuel asse...	ANS-8.X		Potential New Standard		
NEI 12-13, External Hazards PRA Peer Review Process Guidelines, Revision 0 (August 2012)	7-Jan-15	This document provides guidance material for use in conducting and documenting an External Hazards Probabilistic Risk Assessment (PRA) Peer Review.					
NEI 12-11, Building a Joint Information System, Revision 0	1-Jun-12	The Joint Information System (JIS) Task Force was formed to provide the nuclear energy industry with a holistic approach for response in a declared emergency or significant event. A JIS provides an important framework for reaching out to the public to provide accurate, tim...	NA				
NEI 12-10, Guideline for Developing a Licensee Protective Action Recommendation Procedure Using NURE	11-Apr-14	This guidance provides a Protective Action Recommendation (PAR) strategy development tool for use by licensees, in collaboration with Offsite Response Organizations (OROs) that assists in development of a site-specific PAR procedure using the guidance in Supplement 3. ...	NA				
NEI 12-10, Guideline for Developing a Licensee Protective Action Recommendation Procedure Using NURE	11-Apr-14	This guidance provides a Protective Action Recommendation (PAR) strategy development tool for use by licensees, in collaboration with Offsite Response Organizations (OROs) that assists in development of a site-specific PAR procedure using the guidance in Supplement 3. ...	NA				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 12-08, Overview of External Flooding Reevaluations, August 2012	1-Dec-12	This document provides a general overview of flooding evaluation s.@ It is intended to aid the understanding of flooding events, terminology, concepts and methods for those who are responsible for these activities.	ANS-58.XX		Incorporate into Flooding design standard		
NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, August 20	1-Aug-12	One of the primary lessons learned from the accident at Fukushima Dai-ichi was the significance of the challenge presented by a loss of safety-related systems following the occurrence of a beyond-design-basis external event. @In the case of Fukushima Dai-ichi, the extended...	LLWR		Potential new standard		
NEI 12-02, Industry Guidance for Compliance with NRC Order EA-12-051, Revision 1 (August 2012)	1-Aug-12	On March 11, 2011, an earthquake occurred off the coast of Japan that resulted in a tsunami causing considerable damage to several commercial nuclear power plant facilities. The U.S. Nuclear Regulatory Commission (NRC) assembled a response task force to investigate and review...	NA				
NEI 12-01, Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication	1-May-12	This technical report provides recommended criteria to assist with the preparation of assessments that will determine the required staff necessary for responding to a beyond design basis external event that affects multiple units at a site, and the identification of enhanc...	LLWR		Potential new standard		
NEI 11-06, Diversity Recruitment & Retention Toolkit, Revision 1 - August 2012	5-Sep-12	The U.S. nuclear industry values a qualified and diverse talent base. Individual organizations within the industry have developed tools and approaches to attract, recruit and retain a diverse workforce. These tools and approaches have achieved varying degrees of success in...	NA				
NEI 11-05, Guidelines for Implementation of NRC EP Rule Changes and Interim Staff Guidance, Revision	8-Mar-12	NEI 11-05, @Guidelines for Implementation of NRC EP Rule Changes and Interim Staff Guidance,@ Revision 0, dated March 2012, has been superseded by @ Template Checklist for Implementation of NRC Challenging Drills and Exercises Regulation ,@ document dated April 2015.	NA				
NEI 11-04A, Quality Assurance Program Description, Revision 0, August 2013	21-Aug-13	This guideline has been developed to assist the industry in developing a QAPD for implementing the quality standards endorsed through the issuance of Regulatory Guide 1.28, Revision 4. @ This accepted version of NEI 11-04, Revision 0, incorporates the Final Safet...	ANS-3.2				
NEI 11-03, Guidelines for Maintaining and Evaluating Changes to Emergency Plans, Revision 1 (October	1-Jan-12	NEI 11-03 The purpose of the 10 CFR 50.54(q) rule is to ensure that emergency plans are maintained, proposed changes are properly analyzed and the results of the analysis are thoroughly documented. When required, approval by the NRC is obtained prior to implementation.@@ The pur...	ANS-3.8.x				
NEI 10-09, Addressing Cyber Security Controls for Nuclear Power Reactors, Revision 0	13-Sep-11	NEI 10-09 was developed to support the consistent implementation of technical, operational, and management cyber security controls across the industry.	NA				
NEI 10-08, Cyber Security Program Review, Revision 0	1-Apr-12	NEI 10-08, @Cyber Security Program Review@ was developed to support the conduct of a review of the implementation of Cyber Security Programs at nuclear power reactors. The Cyber Security Program Review implements the reviews required by 10 CFR 73.54(g), and supports the pe...	NA				
NEI 10-07, Industry Guideline for Effective Pre-Application Interactions With Agencies Other Than NR	26-Mar-13	This document was developed by NEI@s Early Site Permit (ESP) Task Force to capture lessons learned from the experience of six ESP application processes as an aid to future applicants in navigating the complex array of interactions with the numerous and diverse entities tha...	NA				
NEI 10-06, Regulatory Issue Resolution Protocol, Revision 0, June 2010	28-Mar-14	This guideline describes a Regulatory Issue Resolution Protocol that may be used by the industry and the U.S. Nuclear Regulatory Commission (NRC) to evaluate, resolve and close out selected generic regulatory issues. It includes five phases, briefly summarized in the figur...	NA				
NEI 10-06, Regulatory Issue Resolution Protocol, Revision 0	20-Sep-11	This guideline describes a Regulatory Issue Resolution Protocol that may be used by the industry and the U.S. Nuclear Regulatory Commission (NRC) to evaluate, resolve and close out selected generic regulatory issues.	NA				
NEI 10-05, Assessment of On-Shift ERO Staffing and Capabilities, Revision 0, June 2011	1-Jun-11	A nuclear power plant's on-shift Emergency Response Organization (ERO) staff must be capable of implementing the site emergency plan to address a spectrum initiating events and consequences. Key emergency response functions and tasks are described in NUREG-0654. The on-shift...	ANS-3.8.X				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 10-04, Identifying Systems and Assets Subject to the Cyber Security Rule, Revision 2	1-Apr-12	The purpose of NEI 10-04 is to provide guidance on the identification of digital computer and communication systems and networks subject to the requirements of 10 CFR 73.54.	LLWR, RAR		All Safety Design Criteria Standards		
NEI 10-04, Identifying Systems and Assets Subject to the Cyber Security Rule, Revision 1	24-Jun-11	The purpose of NEI 10-04 is to provide guidance on the identification of systems and assets subject to the requirements of 10 CFR 73.54 (NRC Cyber Security Rule).	LLWR, RAR		All Safety Design Criteria Standards		
NEI 10-03, Used Fuel Storage and Transportation Issue Resolution Protocol, Revision 0	6-Oct-10	This guideline describes a protocol that may be used by industry and the Nuclear Regulatory Commission (NRC) staff in the Division of Spent Fuel Storage and Transportation to evaluate and close out selected generic issues.@ It includes five phases:@ (1) Identification Phas...	NA				
NEI 10-01, Industry Guideline for Developing a Plant Parameter Envelope in Support of an Early Site	26-Mar-10	NEI 10-01 provides generic guidance for the development of a plant parameter envelope in support of an Early Site Permit (ESP). The purpose of this guidance is to provide a logical, consistent, and workable framework for developing a Plant Parameter Envelope (PPE) that sup...	ES		Potential new standard		
NEI 09-14 - Guideline for the Management of Buried Piping Integrity, Revision 3, April 2013	19-Feb-13	This Guideline for the Management of Underground Piping and Tank Integrity describes the policy and practices that the industry commits to follow in managing underground piping and tanks. The Underground Piping and Tanks Integrity Initiative superseded the Buried Piping In...	LLWR		Potential new standard		
NEI 09-12, Guideline for Establishing a Safety-Conscious Work Environment for New Nuclear Plant Con	24-Feb-10	This document has been specifically developed to assist organizations involved in engineering, procurement or construction (E/P/C) activities for new nuclear power plants in developing and maintaining a SCWE program. Thus, this document outlines key elements and attributes...	LLWR		Potential new standard		
NEI 09-10, Guidelines for Effective Prevention and Management of System Gas Accumulation, Revision 1	1-Oct-09	This document provides recommendations and guidance to nuclear generating stations for the effective implementation of programs and processes to prevent and manage gas intrusion and accumulation in plant systems. The document provides a structured approach to develop proce...	LLWR		Potential new standard		
NEI 09-07, Fostering a Strong Nuclear Safety Culture, Revision 1, March 2014	1-Nov-10	This guideline on Fostering a Strong Nuclear Safety Culture describes the industry approach to assessing and addressing nuclear safety culture issues. It places primary responsibility on line management, and in particular, on the site leadership team. The industry guidelin...	LLWR				
NEI 09-04, Uniform Nuclear Curriculum Tookit, Rev. 0	1-Apr-09		ANS-3.1				
NEI 09-02, Lessons Learned from Past and Present Construction of Nuclear Facilities, Revision 0	24-Feb-10	NEI 09-02, Lessons Learned from Past and Present Construction of Nuclear Facilities, summarizes the results of the industry review of past and present experience/problems associated with new nuclear plant construction. The document also identifies current industry programs...	NA				
NEI 08-10, Roadmap for Power Uprate Program Development and Implementation, Rev. 0, July 2009	1-Jul-09	This document provides guidance intended to promote excellence in executing power uprates at commercial operating nuclear power stations.@ NEI 08-10 builds on previous efforts and addresses a number of topics associated with the power uprate process including; 1) a brief o...	LLWR		Potential new standard		
NEI 08-09, Cyber Security Plan for Nuclear Power Reactors, Revision 6 (April 2010) (Word Version)	28-Apr-10	The purpose of the Cyber Security Plan (Plan) is to provide a description of how the requirements of 10 CFR 73.54, @Protection of digital computer and communication systems and networks@ (Rule) are implemented. The intent of the Plan is to protect the health and safety of ...	NA				
NEI 08-09, Cyber Security Plan for Nuclear Power Reactors, Revision 6 (April 2010) (PDF Version)	28-Apr-10	The purpose of the Cyber Security Plan (Plan) is to provide a description of how the requirements of 10 CFR 73.54, @Protection of digital computer and communication systems and networks@ (Rule) are implemented. The intent of the Plan is to protect the health and safety of ...	NA				
NEI 08-08, Generic FSAR Guidance for Life-Cycle Minimization of Contamination, Revision 3	17-Dec-08	NEI 08-08, Generic FSAR Template Guidance for Life-Cycle Minimization of Contamination provides a complete generic program description for use in developing construction and operating license (COL) applications. The document reflects contemporary U.S. Nuclear Regulatory Co...	LLWR		Potential new standard		
NEI 08-05, Industry Initiative on Control of Heavy Loads, Rev. 0, July 2008	8-Jul-08	Discusses NRC staff concerns about heavy load lifts and specifies industry actions which will be taken to ensure that heavy load lifts will continue to be conducted safely and that plant licensing bases accurately reflect plant practices.	LLWR		New standard or incorporate into existing standards		

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 08-03, Lessons Learned from Initial Early Site Permit Experience, Revision 0, February 2008	21-Feb-08	Presents lessons learned based on experience from the three pilot applications for Early Site Permits (ESP) submitted in 2003 by Dominion, Entergy and Exelon, and a fourth ESP application submitted by Southern Nuclear in 2006.	NA				
NEI 08-02, Corrective Action Processes for New Nuclear Power Plants During Construction, Revision 3,	19-Feb-10	This document provides guidance to Combined Operating License applicants and their suppliers in problem identification and resolution for use during construction of new nuclear power plants.	NA				
NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52, Rev. 5 - Corrected	16-Jul-10	Provides generic guidance for the inspections, tests, analyses, and acceptance criteria (ITAAC) program for new nuclear plants licensed under 10 CFR Part 52.	LLWR		Potential new standard		
NEI 07-14, Force-on-Force Self-Assessment Guide, Rev. 0	5-Jan-09	Please contact your security manager to obtain a copy of NEI 07-14. If you do not know who your security manager is, please contact Tony Qualantone at amq@nei.org .	ANS-3.3				
NEI 07-13, Methodology for Performing Aircraft Impact Assessments for New Plant Designs, Revision 6	1-Aug-08		LLWR		Potential new standard		
NEI 07-12, Fire Probabilistic Risk Assessment Peer Review Process Guidelines, Revision 1 (June 2010)	7-Nov-08	This document provides guidance material for use in conducting and documenting a Fire Probabilistic Risk Assessment (FPRA) Peer Review.	ANS58.23				
NEI 07-11, Generic Template Guidance for Cost-Benefit Analysis for Radwaste Systems for Light-Water-	27-Sep-07	Provides a generic approach for use in support of design certification (DC) and combined license (COL) applications to demonstrate compliance with the regulatory requirement to perform a cost-benefit analysis for radwaste systems (10 CFR 50, Appendix I, Section II.D). The ...	FWD		Potential new standard		
NEI 07-10A, Generic FSAR Template Guidance for Process Control Program, Revision 0, March 2009	25-Mar-09	Provides a generic program description for use in developing construction and operating license (COL) applications. The document reflects contemporary Nuclear Regulatory Commission (NRC) guidance, including Regulatory Guide 1.206, @Combined License Applications for Nuclear...	NA				
NEI 07-09A, Generic FSAR Template Guidance for ODCM Program Description, Rev. 0, March 2009	25-Mar-09	Describes elements of the process and effluent monitoring and sampling programs required by 10 CFR 50, Appendix I and 10 CFR 52.79 (a)(16). Applicants for combined licenses (COL) or design certifications may reference this generic template as an alternative to providing th...	NA				
NEI 07-08, Generic FSAR Template Guidance for Ensuring That Occupational Radiation Exposures Are ALA	7-Nov-08	Provides a complete generic program description for use in developing construction and operating license (COL) applications. The document reflects contemporary Nuclear Regulatory Commission (NRC) guidance, including Regulatory Guide 1.206, @Combined License Applications fo...	SRA		Potential new standard		
NEI 07-07, Industry Ground Water Protection Initiative, Final Guidance Document, August 2007	27-Aug-07	Identifies actions to improve utilities@ management and response to instances where the inadvertent release of radioactive substances may result in low but detectible levels of plant-related materials in subsurface soils and water. Releases addressed by this Initiative fal...	SRA, ES		Potential new standard		
NEI 07-06, The Nuclear Regulatory Process, Final, March 2007	8-Mar-08	Presents a basic description of the nuclear regulatory process and its elements for operating nuclear power plants. Intended to provide a foundation for maintaining a common understanding of the nuclear regulatory process, to refresh our knowledge of the nuclear regulatory...	NA				
NEI 07-05, 10 CFR 50-46 Reporting Guidelines, Final, July 2008	29-Jan-13	This guideline describes an acceptable approach to satisfy the reporting requirements of 10 CFR 50.46(a)(3). @These requirements involve the identification, evaluation, and reporting of changes to or errors in an acceptable ECCS evaluation model for loss-of-coolant-acciden...	NA				
NEI 07-04, Manufacturing Capacity Assessment for New U.S. Nuclear Plants, Revision 1, July 2007	9-Jul-07	Evaluates the ability of U.S. and global equipment manufacturers to support the construction of new nuclear power plants in the U.S. Identifies potential @pinch-points@ of key equipment and components that could be challenging for the manufacturing industry to supply to me...	NA				
NEI 07-03, Generic FSAR Template Guidance for RP Program Description, Revision 7, November 2008	7-Nov-08	Provides a complete generic program description for use in developing construction and operating license (COL) applications. The document reflects contemporary NRC guidance, including Regulatory Guide 1.206 (Draft Guide DG-1145), @COL Applications for Nuclear Power Plants ...	NA				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 07-02A, Generic FSAR Template Guidance for MRPD for Plants Licensed Under 10 CFR Part 52, Rev. 0	22-Nov-10	[PDF 1.8 MB]@Provides a complete generic program description for use in developing combined license (COL) application final safety analysis reports. Assists in develping NRC-approved, standardized FSAR content that expedites NRC review and issuance of the combined license....	NA				
NEI 07-01, Methodology for Development of Emergency Action Levels Advanced Passive Light Water Reac	17-Nov-08	Gives generic guidance on radiological emergency preparedness by developing the methodology for model Emergency Action Levels (EAL). These EALs provide a framework for concrete emergency actions taken during specific emergency scenarios.	ANS-3.8.x		Potential new standard		
NEI 06-14A, Quality Assurance Program Description, Revision 7, August 2010	10-Aug-10	NEI 06-14A, Revision 7, is the latest revision of the document and includes the NRC SER approval of NEI 06-14, Rev. 9. Quality Assurance Program Description (QAPD) is the top-level policy document that establishes the quality assurance policy and assigns major funct...	ANS-3.2				
NEI 06-13A, Template for an Industry Training Program Description, Revision 2	28-Jan-13	Provides a generic program description for use with combined license (COL) applications. The document reflects draft guidance provided by the NRC and industry@NRC discussions on training-related issues. Focuses on providing qualified training programs for employees.	ANS-3.1				
NEI 06-13A, Template for an Industry Training Program Description, FAQ	1-Nov-11		ANS-3.1				
NEI 06-11 - Managing Personnel Fatigue at Nuclear Power Reactor Sites, Revision 1, with Addendum	1-May-14	This document provides guidance for managing fatigue in accordance with 10 CFR 26, Subpart I, Managing Personnel Fatigue. The goals of this guide are to provide the tools needed to meet regulatory requirements while: • m aintaining reasonable assurance of industrial an...	LLWR		Potential new standard		
NEI 06-09, Risk-Informed Technical Specifications Initiative 4b, Rev. 0 - A, November 2006	1-Nov-06	Provides guidance for implementation of a generic Technical Specifications improvement that establishes a risk management approach for voluntary extensions of completion times for certain Limiting Conditions for Operation. Provides the risk management methodology, which wi...	LLWR				
NEI 06-07, NEI Task Force Report On Recyling, July 2006	29-Aug-06		NA				
NEI 06-06, Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites, Revisio	4-Jun-14	NEI 06-06, Fitness for Duty Guidance for New Nuclear Power Plant Construction Sites , has been designed to establish program level consistency in Fitness for Duty Programs for new plant construction sites throughout the nuclear power industry in the implementation of 10 C...	LLWR		Potential new standard		
NEI 06-05, Medium Voltage Underground Cable White Paper, April 2006	26-Mar-07	Describes the genesis of concerns over medium-voltage underground cable performance, gives data on performance background, and discusses the overall outlook for medium-voltage underground cable performance.	NA				
NEI 06-05, Medium Voltage Underground Cable Technical Report, April 2006	17-Apr-06	Describes the genesis of concerns over medium-voltage underground cable performance, gives data on performance background, and discusses the overall outlook for medium-voltage underground cable performance.	NA				
NEI 06-04, Conducting a Hostile Action-Based Emergency Response Drill, Revision 2, August 2011	1-Apr-10	The NEI Hostile Action-Based (HAB) Drill Task Force has developed this document to establish guidance for the development, conduct and evaluation of HAB emergency response drills and exercises. An HAB drill provides an opportunity to practice the integrated response to a H...	ANS-3.8.x				
NEI 06-03, Nuclear Sector Coordinating Council Influenza Pandemic Threat Summary and Planning, Prepa	29-Nov-06	Describes the threat of an influenza pandemic, frames it for discussion, provides information, and assists nuclear sector owners and operators in developing plans to manage this threat.	NA				
NEI 06-02, License Amendment Request Guidelines, Revision 4	13-Nov-12	NEI 06-02 describes a standardized approach to the license amendment process used by commercial nuclear power plant licensees.	NA				
NEI 05-08, Executive Task Force on Industry Coordination Annual Review of Progress and Recommendatio	18-Apr-05	Makes recommendations over several topical areas to improve the efficiency and coordination of the industry.	NA				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 05-04, Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard,	2-May-13	This document provides guidance material for conducting and documenting a peer review for Probabilistic Risk Assessments (PRAs) using the ASME/ANS PRA Standard RA-S-2008a (Revision 1, Addendum A).@ The original intend of NEI 05-04 was to provide a methodology for PRA Peer ...	ANS-58.XX				
NEI 05-01, Severe Accident Mitigation Alternatives (SAMA) Analysis Guidance Document Rev. A, Novembe	17-Nov-05	Provides a template for completing the severe accident mitigation alternatives (SAMA) analysis in support of license renewal. Identifies information that should be included in the SAMA portion of a license renewal application environmental report to reduce the necessity fo...	LLWR		Potential new standard		
NEI 04-10, Risk-Informed Technical Specifications Initiative 5b, Rev. 1, April 2007	17-Apr-07	Provides guidance for implementation of a generic Technical Specifications improvement that establishes licensee control of surveillance test frequencies for the majority of Technical Specifications surveillances. Uses a risk-informed, performance based approach for establish...	LLWR				
NEI 04-08, Risk-Informed Technical Specifications Initiative 7a, March 2006	17-Mar-06	Provides guidance for implementation of a generic Technical Specification improvement that establishes a new Technical Specification Limiting Condition for Operation (LCO) Applicability rule, LCO 3.0.9, and its associated Bases, to address degraded barriers that cannot pro...	ANS-XX		Potential new ANS Standard		
NEI 04-07, Pressurized Water Reactor Sump Performance Evaluation Methodology Rev. 0 Volume 2, May 20	19-May-06	Provides a methodology for evaluating the performance of pressurized water reactor sump blockage, in response to General Safety Issue 191, "Potential for PWR Sump Blockage Post-LOCA."	LLWR		Potential new ANS Standard		
NEI 04-07, Pressurized Water Reactor Sump Performance Evaluation Methodology Rev. 0 Volume 1, May 20	19-May-06	Provides a methodology for evaluating the performance of pressurized water reactor sump blockage, in response to General Safety Issue 191, "Potential for PWR Sump Blockage Post-LOCA."	LLWR		Potential new ANS Standard		
NEI 04-05, Living Program Guidance To Maintain Risk-Informed Inservice Inspection Programs For Nucle	15-Apr-04	Discusses American Society of Mechanical Engineers (ASME) Code Requirements, or alternatives endorsed by the Nuclear Regulatory Commission, as a means to address periodic inspections of piping systems and components, Discusses the need to evaluate the program with regards ...	NA				
NEI 04-04, Cyber Security Program for Power Reactors, March 2005	21-Mar-05	Provides guidance on maintaining cyber security at power reactors. To obtain a copy of this document, please contact your Security Manager. If you don not know who your Security Manager is, contact Bill Gross at wrg@nei.com	NA				
NEI 04-02, Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Unde	10-Feb-06	Provides guidance for implementing the requirements of the changes made to 10 CFR 50.48 and, to the degree endorsed by the NRC, represents methods acceptable to the NRC for implementing in whole or in part a risk-informed, performance-based fire protection program.	JCNRM				
NEI 04-01, Industry Guideline for COL Applicants Under 10 CFR Part 52, Revision E Draft, Ocotober 2	5-Oct-05	Provides guidance for preparing COL applications and related COL process issues.	NA				
NEI 03-12, Template for Security Plan and Training and Qualification Plan, June 2004	10-Jun-04		ANS-3.3				
NEI 03-11, Guidance for the Preparation and Conduct of Force-On-Force Exercises, Revision 1	1-Dec-05	This guideline describes a recommended approach and process for sites to prepare for scheduled NRC evaluated triennial Force-On-Force (FOF) exercises and to conduct annual site FOF exercises. It has been compiled based on previous exercise information generated through the...	ANS-3.3				
NEI 03-10, Implementation of Risk-Informed Technical Specification Initiative, September 2003	5-Sep-03	Provides guidance for implementation of a generic Technical Specification improvement that establishes a risk management approach for control of plant mode changes when Technical Specification systems or components are not operable.	LLWR		Potential new ANS Standard		
NEI 03-09, Security Officer Training Program, June 2004	10-Jun-04		ANS-3.1 / ANS-3.3				
NEI 03-08, Guideline for Management of Materials Issues, Roadmap, June 2012	18-Jun-12		LLWR		Potential new ANS Standard		
NEI 03-08, Addenda, Revision 1, February 2008	5-Feb-08	Outlines the policy and practices that the industry commits to follow in managing materials aging issues. Defines the scope to which they apply and provides guidance on how the utilities and the issue programs they fund operate to ensure that the Policy is effectively impl...	LLWR		Potential new ANS Standard		
NEI 03-08 - Guideline for the Management of Materials Issues, Revision 2	5-Nov-13	The Industry Guideline for the Management of Materials Issues outlines the policy and practices that the industry commits to follow in managing materials aging issues.@ The guideline 1) documents the formal Industry Initiative on Management of Industry Materials Issues (th...	LLWR		Potential new ANS Standard		

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 03-06, Personnel Access Data System Electronic System, Revision 3, January 2007	25-Jan-07		NA				
NEI 03-05, Personnel Access Data System Operating Manual, Revision 2, January 2007	25-Jan-07		NA				
NEI 03-04, Guideline for Plant Access Training, Revision 3, January 2007	25-Jan-07	As part of the Nuclear Energy Institute@s Personnel Access Data System (PADS) project, this document, NEI 03-04, Guideline for Plant Access Training, has been developed to provide an industry standard for training activities. The predecessor document, NEI 95-04, Guideline ...	ANS-3.1				
NEI 03-03, Personnel Access Data System Health Physics Standards and Procedures, Rev. 1, January 200	25-Jan-07	NEI 03-03 provides guidance to be used industry-wide to maintain health physics records associated with personnel in-processing and out-processing. It standardizes the initiation, content, format, and retention of health physics records to support efficient and cost-effect...	NA				
NEI 03-02, Access Authorization and Fitness-for-Duty Audit Program, Revision 4, January 2007	25-Jan-07	This document NEI 03-02, Access Authorization and Fitness-for-Duty Audit Program (Formerly NEI 94-02), was developed by the NEI Task Force on Access Control Audits of Contractor/Vendor Programs. The committee was made up of both Utility and Contractor representatives....	ANS-3.3		Potential new ANS Standard		
NEI 03-01, Industry Guideline for Nuclear Power Plant Access Authorization Programs, Rev. 3, May 200	1-May-09	NEI 03-01, Nuclear Power Plant Access Authorization Program , provides standard industry criteria for implementing the Access Authorization Rule and to establish consistency in access authorization programs throughout the industry in the implementation of the Nu...	ANS-3.3		Potential new ANS Standard		
NEI 02-03, Guidance for Performing a Regulatory Review of Proposed Changes to the Approved FP Progra	11-Jun-04	Provides generic guidance for use by licensees to develop a regulatory review process for determining if a change to the approved fire protection program (AFPP) requires prior Nuclear Regulatory Commission (NRC) approval.	NA				
NEI 02-02, A Risk-Informed, Performance-Based Regulatory Framework For Power Reactors, May 2002	5-Jun-02	Proposal for a new regulatory framework for power reactors including principles, baseline criteria, a complete set of proposed regulations, and the foundations for the new framework.	LLWR		Potential new ANS Standard		
NEI 02-01, Condition Assessment Guidelines, Debris Sources Inside PWR Containments, Rev. 0, April 20	10-Apr-02	Addresses potential for blockage of sump screens by even small amounts of material. Provides guidance for plant operators during inspections so that they can perform accurate future assessments.	LLWR		Potential new ANS Standard		
NEI 01-03, Writer's Guide for the Improved Standard Technical Specifications, November 2001	2-Aug-02	Provides specific guidance for the preparation of plant-specific Improved Technical Specifications (ITS). Provides guidance in the format and content of the ITS and promotes consistency in content, format, and style.	LLWR		Potential new ANS Standard		
NEI 01-01, Guideline on Licensing Digital Upgrades EPRI TR-102348, Final, March 2002	15-Mar-02	Assists nuclear plant operators in designing, licensing and implementing digital upgrades in a consistent, comprehensive manner.	NA				
NEI 00-04, 10 CFR 50-69 SSC Categorization Guideline, Revision 0 Final, July 2005	7-Jul-05	This document provides detailed guidance on categorizing structures, systems and@ components for licensees that choose to adopt 10 CFR 50.69, Risk-Informed@ Categorization and Treatment of Structures, Systems and Components for Nuclear Power@ Reactors. A licensee wishing...	ANS-30.2				
NEI 00-02, Probablilistic Risk Assessment Peer Review Process Guidance, Revision A3, March 2000	20-Mar-02	Provides guidance material for use in conducting and documenting a Probabilistic Risk Assessment (PRA) Peer Review. The Peer Review Process and guidance material was adapted from the review process originally developed and used by the Boiling Water Reactor Owners Group (BW...	JCNRM				
NEI 00-01, Plan Summary for NEI 00-01 Pilots, Revision F, August 2001	1-Aug-01	Provides both deterministic and risk-informed methods for resolving circuit failure issues.	NA				
NEI 00-01, Guidance for Post-Fire Safe Shutdown Circuit Analysis, Rev. 2, May 2009	1-May-09	Provides both deterministic and risk-informed methods for resolving circuit failure issues.	LLWR				
NEI 00-01, Guidance for Post-Fire Safe Shutdown Circuit Analysis, Rev 2, May 2009	1-May-09	NEI 00-01 was developed to provide a deterministic methodology for performing post-fire safe shutdown analysis.@In addition, NEI 00-01 includes information on risk-informed methods (when allowed within a Plant@s License Basis) that may be used in conjunction with the dete...	LLWR				
AP-940, Nuclear Asset Management Process Description and Guideline, Rev. 0, May 2005	1-May-05		LLWR		Potential new ANS Standard		
AP-907-005, SS003 Procedure Writer's Manual, Rev. 0, August 2006	1-Aug-06	The purpose of this Procedures Writers@ Manual is to provide an industry standard based on the consensus of nuclear industry peers.@ It is intended to be used by nuclear plant owners or operators to asses their procedure writing process.	NA				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
AP-907-001, SS003 Sub-Process Procedure Process Discription, Revision 0, March 2006	1-Mar-06		NA				
AP-907, NEI Industrywide Process Description SS003, Information Management Process Description G	1-Jul-03		NA		None		
AP-907, Information Management Process Description and Guideline, Rev. 1, July 2003	1-Jul-03		NA				
NEI 99-09, NRC Regulatory Oversight Process, Pilot Plants Lessons Learned, December 1999	1-Dec-99		NA				
NEI 99-07, Safeguards Performance Assessment Program, Revision 0, November 2000	30-Nov-00		ANS-XX		Potential new ANS Standard		
NEI 99-05, Guidance for Fire Protection Self-Assessments, December 1999	15-Jun-01	Provides a method for assessing plant fire protection programs, but not standards for compliance.	NA				
NEI 99-04, Guidelines for Managing NRC Commitment Changes, Revision 0, July 1999	1-Jul-99	Describes a baseline set of commitment change concepts that licensees can use to supplement their plant-specific programs for changing both past and future commitments.	NA				
NEI 99-03, Regulatory Guide Endorsement, Final, November 2003	19-Nov-03	Provides guidance to assist licensees in assuring that their control rooms satisfy the NRC regulation and licensee commitments associated with control room habitability.	ANS-59.7/ ANS-58.11				
NEI 99-03, Control Room Habitability, June 2001	1-Jun-01	Provides guidance to assist licensees in assuring that their control rooms satisfy the NRC regulation and licensee commitments associated with control room habitability.	ANS-59.7/ ANS-58.11				
NEI 99-03, Control Room Habitability Guidance, Revision 1, March 2003	10-Mar-03	Provides guidance to assist licensees in assuring that their control rooms satisfy the NRC regulation and licensee commitments associated with control room habitability.	ANS-59.7/ ANS-58.11				
NEI 99-03, Control Room Habitability Assessment Guidance, Revision 0, June 2001	19-Jun-03	Provides guidance to assist licensees in assuring that their control rooms satisfy the NRC regulation and licensee commitments associated with control room habitability.	ANS-59.7/ ANS-58.11				
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 7	30-Sep-00	Provides guidance for power reactor licensees to collect and report the data elements that the NRC will use to compute Performance Indicators.	NA				
NEI 99-01 - Development of Emergency Action Levels for Non-Passive Reactors, Revision 6, November 20	4-Apr-13	The purpose of Nuclear Energy Institute (NEI) 99-01 is to provide guidance to nuclear power plant operators for the development of a site-specific emergency classification scheme.@ The methodology described in this document is consistent with Federal regulations, and relat...	LLWR				
NEI 98-07, Nuclear Utility Year 2000 Readiness; Contingency Planning, August 1998	1-Aug-98	Provides a focused approach to effective contingency planning that builds on the Year 2000 readiness program nuclear utilities already have in place.	NA				
NEI 98-03, Guidelines for Updating Final Safety Analysis Reports, Revision 1, June 1999	19-Oct-99	Provide licensees with guidance for updating final safety analysis reports (FSARs) consistent with the requirements of 10 CFR 50.71 (e). Also in Appendix A, provides for making voluntary modifications to updated FSARs to improve their focus. Clarity and maintainability.	NA				
NEI 98-02, Regulatory Process for Decommissioning Nuclear Power Reactors, Final, March 1998	17-Apr-02	Provides a summary of ongoing federal agency and industry activities related to decommissioning power reactors.	NA				
NEI 98-01, Industry Spent Fuel Storage Handbook, Final, May 1998	1-Jan-98	Provides an overview of storage expansion experience, as well as a summary of expansion alternatives. Highlights dry storage licensing requirements and technical issues associated with dry storage projects.	FWD				
NEI 97-07, Nuclear Utility Year 2000 Readiness, October 1997	1-Jul-97	Suggests a strategy for a nuclear utility Year 2000 Project, recognizing management, implementation, quality assurance, and documentation as the fundamental elements of a successful Project.	NA				
NEI 97-06, Steam Generator Program Guidelines, Revision 3 (January 2011)	1-Jan-11	This document establishes a framework for structuring and strengthening existing Steam Generator Programs. It provides the fundamental elements to be included in a Steam Generator Program.@ The intent of this document is to bring consistency in application of indust...	NA				
NEI 97-05 Nuclear Power Plant Personnel Employee Concerns Program Process Tools	1-Dec-03	Provides a collation of practices and techniques for resolving employee concerns in a Safety Conscious Work Environment through an Employee Concerns Program.	NA				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 97-04, Design Bases Program Guidelines, Revision 1, February 2001	17-Apr-02	The basic intent of the guidelines is to assist licensees in organizing and collating a@ nuclear power plant@s design bases information consistent with the definition of design@ bases contained in 10 CFR 50.2 and the NRC-endorsed guidance in Appendix B. In@ addition, the...	LLWR, RAR		Potential new ANS Standard		
NEI 97-03, Methodology for Development of Emergency Action Levels, Final, August 1997	1-Mar-97	Provides method for developing site-specific EALs using site-specific EAL presentation methods. Basis information is provided to aid station personnel in preparation of their own sit-specific EALs, to provide necessary information for training, and for explanation to state...	LLWR				
NEI 97-02, Technical Basis for Alternate Disposal Requests, May 1997	17-Apr-02	Determines, by generally accepted calculation techniques, maximum permissible concentration limits for radionuclides that may be contained in slightly contaminated bulk waste materials.	FWD		Potential new standard		
NEI 97-01, Dry Fuel Storage Generic Action Plan, March 1997	17-Apr-02	Establishes an integrated approach necessary to successfully complete a spent fuel transfer campaign. Includes information on project management, engineering, licensing, quality assurance, communications, and vendor interface activities required for project completion.	FWD		Potential new standard		
NEI 96-08, License Renewal for Nuclear Energy Plants, A Study of Proactive, Opposition, and Responsi	13-Apr-04	Provides a research summary of public responses to the license renewal process.	NA				
NEI 96-07, Guidelines for 10 CFR 50-59 Implementation, Revision 1, Nov 2000	12-Dec-00	This document provides guidance for implementing the revised 10 CFR 50.59.@ While it contains new guidance corresponding to new and revised rule criteria, overall, the document reflects a refinement of longstanding industry practice, not a radical new approach.@ The basic ...	NA				
NEI 96-07, Appendix E, User's Guide for NEI 96-07 Revision 1 Guidelines for 10 CFR 50 59 Implementat	1-Nov-11	In 2000, the Nuclear Energy Institute (NEI) issued NEI 96-07, Revision 1, @Guidelines for 10 CFR 50.59 Implementation.@ This revision reflected the revised 10 CFR 50.59 Rule, approved in 1999, to allow changes that have minimal impact to be made without prior Nuclear Regul...	NA				
NEI 96-07, Appendix C, Guideline for Implementation of Change Processes for New Nuclear Power Plants	8-Apr-14	NEI 96-07, Appendix C,@ Guideline for Implementation of Change Processes for New Nuclear Power Plants Licensed Under 10 CFR Part 52 , provides generic guidance for the change processes to be used under a Part 52 combined license as specified in 10 CFR 52.98.@ The document ...	LLWR		Potential new standard		
NEI 96-07, Appendix B - Guidelines for 10 CFR 72-48 Implementation, March 2005	13-Jun-01	In 1999, the NRC revised 10 CFR 72.48 to be consistent with the changes being@ made to 10 CFR 50.59. NE1 97-06, Revision 1 was developed to provide guidance@ for the revised 10 CFR 50.59 regulation. Because of the intended consistency@ between 10 CFR 50.59 and 10 CFR 72....	LLWR				
NEI 96-06, Improved Technical Specifications Conversion Guidance, Revision 0, August 1996	6-Jan-96	Gives an overview of the process for converting from current technical specifications to improved technical specifications.	LLWR		Potential new standard		
NEI 96-05, Guidelines for Assessing Program for Monitoring the Licensing Basis, Revison 0, October 1	5-Jan-96	Provides guidance for performing a self assessment of the adequacy of programmatic controls for maintaining the licensing basis in order to identify missing or incorrectly applied programmatic elements that can lead to licensing basis differences.	LLWR		Potential new standard		
NEI 96-04, Enhancing Nuclear Plant Safety and Reliability Through Risk-Based and Performance-Based R	17-Apr-02	Describes a vision for enhancing nuclear plant safety and reliability through risk-based and performance-based regulation.	LLWR		Potential new standard		
NEI 96-03, Industry Guidelines for Monitoring the Conditions of Structures at Nuclear Power Plants,	3-Jan-96	Assists plants in being regulatory compliant and getting the maximum life out of plant structures. Encourages plants to monitor and evaluate structures, even if they are deem inherently reliable.	LLWR		Potential new standard		
NEI 96-01, Nuclear Power Plants Guideline for Operational Planning nd Maintaining Integrity of Vehic	1-Jan-96	Provides the industry with generic guidance to implement regulatory requirements for vehicle barrier systems around the protected areas of nuclear power plants.	LLWR		Potential new standard		
NEI 95-10, Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Rene	1-Jun-05	Provides an acceptable approach for implementing the requirements of 10 CFR Part 54, the license renewal rule.	NA				
NEI 95-07, Guidelines for Managing NRC Commitments, Rev. 2, April 2002	17-Apr-02	Provides advice for managing commitments made to NRC regulators, with special attention paid to evaluation commitments for safety value.	NA				
NEI 95-04, Guideline for General Access Training, June 1996	1-Jun-96		ANS-3.1				

ANS Standards Association with NEI Documents

NEI Document Title	Issue Date	NEI Document Description	ANS CCor Standard	ANS Standard Status	Suggested ANS Standards Approach	Priority (H, L, M)	Comments
NEI 94-01 - Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix	8-May-13	The purpose of this guidance, NEI 94-01 is to assist licensees in the implementation of Option B to 10 CFR 50, Appendix J, @Leakage Rate Testing of Containment of Light Water Cooled Nuclear Power Plants@. Revision 2-A of NEI 94-01 added guidance for extending Type A Integr...	ANS-56.8				
NEI 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plant	1-Apr-11		ANS-XX		Potential new standard		
NEI 91-04, Severe Accident Issue Closure Guidelines, Revision 1, December 1994	13-Apr-04	NEI 91-04 Rev.1. This report was developed with the guidance of the NEI Severe Accident Working Group (SAWG) and with input from the NEI Seismic Issues Working Group (SIWG) and Joint Owners Group Acci...	LLWR		Potential new standard		

ATTACHMENT 12

Presentation on SSC Classification

November, 2015

Issues

- Multiple methods exist in current SDO frameworks for SSC classification
- Regulatory framework incomplete and pressures to evolve to more RIPB methods
- Multiple new projects on the drawing board without adequate consensus guidance
- A lot of wasted SDO time and effort keeping standards current due to lack of better coordinated solutions
- Different expectations for DOE and NRC activities for a wide range of nuclear applications
- Complexity of melding deterministic, probabilistic and performance-based approaches toward risk analysis
- Not taking advantage of benefits of RIPB SSC Classification
- Subset of larger challenges in achieving even more effective use of RIPB methods

2

Outcome Objectives

- Understanding of multiplicity of inconsistent current methods across SDOs
- Agreement on need and benefits to developing a single method that can be technology and application neutral
- Plan that includes the evolving expectation for RIPB methods
- Inclusion of seismic and environmental issues of risk management
- Agreement on priorities
- Approach to solve issue across SDOs

3

Driving Forces

- Design Practices
- Regulatory Expectations
- State of Understanding of RIPB Terms re SSC Classification
- Current SDO guidance on SSC Classification
  - ANS 53.1 – Used MHR as context for generic RIPB process including SSC Classification
  - ANS 58.14 – essentially still based on deterministic methods

4

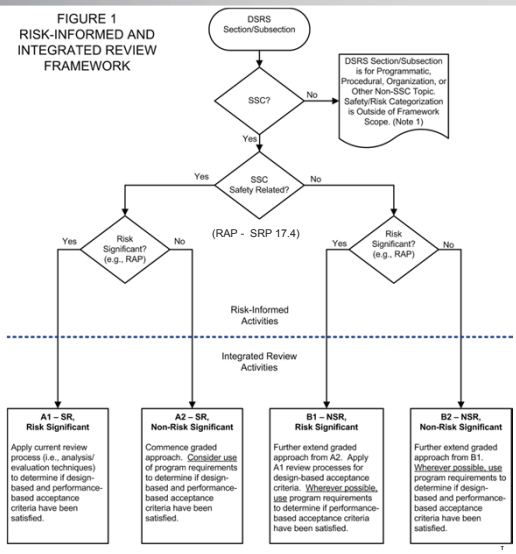
Examples of Conflicts

- LET ME GIVE YOU SOME EXAMPLES OF THE CONFLICTS IN CURRENT GUIDANCE!

5

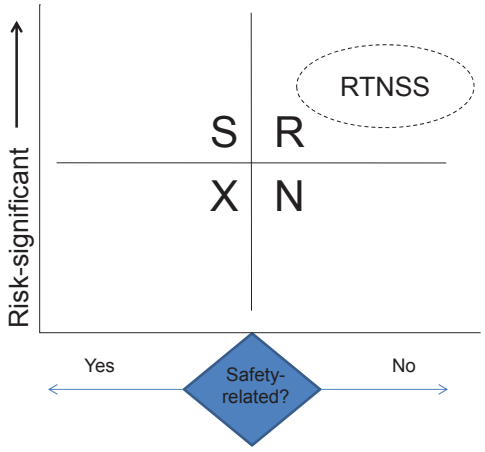
SRP Part 2 Introduction: SMR Risk-Informed Review

- NRC SRP Guidance for Staff review emphasis allows DSRS to replace SRP for Adv. Rx.
- NuReg 0800 Chapter 0, January 2014, provides guidance for SMR design developers to use for classification



6

RIPB SSC Classification Framework From NuScale



From NuScale

FROM ANS 58.14

Classification				
Safety	**ASME Pressure integrity**	**Electrical**	**Seismic**	**Environmental**
Q	C-1, C-2, or C-3 ~See Sec. 6.1.!	1E* ~See Sec. 6.2.!	Seismic Category I ~See Sec. 6.3.!	Harsh or mild ~See Sec. 6.4.!
A	C-4 ~See Sec. 6.1.!	Non-IE ~See Sec. 6.2.!	Seismic Category II or no requirements specified ~See Sec. 6.3.!	Harsh or mild or no requirements specified ~See Sec. 6.4.!
N	C-5	No requirements are specified in this standard.	No requirements are specified in this standard.	No requirements are specified in this standard.

*1E = IEEE Class 1E.

Regulatory Treatment of Non-Safety Systems (RTNSS)

- SSC required to meet one of five regulatory treatments of nonsafety systems (RTNSS) criteria
  - A. Anticipated transient without scram and station blackout
  - B. Ensure long-term safety and address seismic events
  - C. Meet the safety goal guidelines
    - core damage frequency of less than 1 x 10^{-4}/year
    - large release frequency of less than 1 x 10^{-6}/year
  - D. Containment performance goal
  - E. Prevent significant adverse system interactions between passive safety systems and active non-safety SSCs
- Applicability to other risk significant SSC or to DID SSC?

NEI 00-04 Categorization Process

Safety Related	Non-Safety Related
RISC-1	RISC-2
RISC-3	RISC-4

- SO, WHERE DO WE GO FROM HERE?

Roles Of SDO To Establish Common SSC Classifications

- Define Safety Functions consistently and establish generic functional allocation methodology
- Define link to Design and RAP program requirements used by SDOs, ie, mechanical=>ASME; electrical=>IEEE; civil structures=>ACI, etc.

12

Path Forward

- Authorize ANS WG (Done)
- Develop and approve ANS Project Initiation Notice (In Process)
- Establish Core Team (Working Group)
  - SDO Support
  - NRC Financial Support*
  - User Communications (owners groups, etc.)
- Establish SDO coordination requirements
  - ASME, ASTM, IEEE, ACI, NFPA, Etc.
- Develop Project Plan
  - Envisioned products
  - Timeframe
  - Approval process
  - Socialization and endorsement by impacted SDO
- Other areas of useful coordination

* See next slide

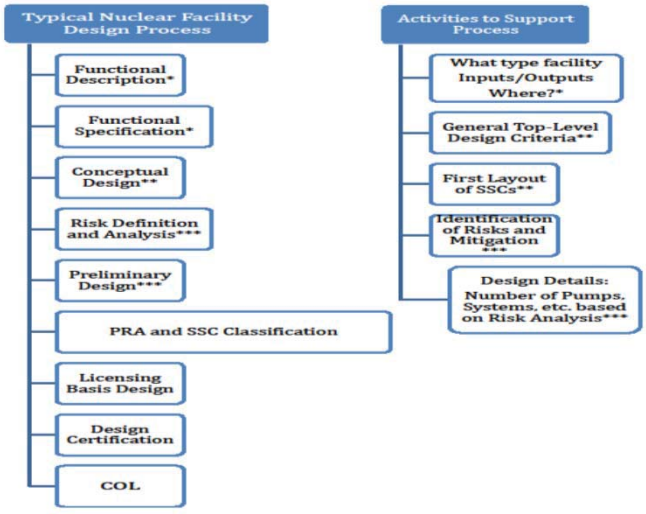
13

Member	Email	Source
Don Spellman	cso592@att.net	Chair - ORNL Retired
Jim Pappas	jim.pappas25@yahoo.com	Chicago Bridge & Iron
Bryan Erler PE	erlerltd@aol.com	ASME Borad of Governors
Prasad Kadambi	praskadambi@verizon.net	NRC Retired
John McLean	john.b.mclean@sargentlundy.com	Sargent & Lundy, LLC
Kent Welter	kentwelter@gmail.com	NuScale Power; Inc.
Bill Culp	william.culp@fluor.com	Fluor
Russ Lake	rllake@bwxt.com	BWXT
Ralph Surman	surmanrc@westringhouse.com	WEC
Kristiina Soderholm	Kristiina.Soderholm@fortum.com	Fortum Corporation, Finland

DESIGN PROCESS

- BACKUP SLIDES

Design Process Flow Diagram



Background

- Regulatory framework or guidance
  - 10 CFR 50.2, “Definitions” – defines safety-related SSCs
  - SECY-95-132, “Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084)”
  - SRP 17.4 , “Reliability Assurance Program (RAP)”
  - DC/COL-ISG-018, “Interim Staff Guidance on Standard Review Plan, Section 17.4, ‘Reliability Assurance Program’”
  - SRP 19.3, “Regulatory Treatment of Non-Safety Systems for Passive Advanced Light Water Reactors,” Draft Rev. 0
  - SECY-11-0024, “Use of Risk Insights to Enhance the Safety Focus of SMR Reviews”
  - SRP Introduction – Part 2, Draft Rev. 0

17

Background

Other relevant industry documents

- Reactors
  - ANS 18.2/51.1/52/1/58.14/53.1/54.1
- Non-reactor nuclear facilities
  - ANS 58.16 - 2014, “Safety Classification and Design Criteria for Non-Reactor Nuclear Facilities”
  - NEI 00-04 – 10 CFR 50.69, “SSC Categorization Guideline”
- EPRI document 1023008, “Design Reliability Assurance Program Implementation Guidance”
- DOE-STD-1189-2008 Integration of Safety Into the Design Process
- DOE-STD-1195-2011 Design of Safety Significant Safety Instrumented Systems Used at DOE Non-Reactor Nuclear Facilities

18

Related Issues and Observations (Cont.)

- PRA currency with design and licensing activities
- Sensitivity study accuracy for SSC design options
- DID redefinition in risk informed design and licensing
- Single Failure Criterion applicability
- Other uses; special events; special treatment, seismic (siting), environmental (storms), aircraft

Evolving Needs

Multiple New Projects On The Drawing Board Without Adequate Consensus Guidance

- Lower levels of safety possible without RIPB approach to SSC Classification
- Higher levels of capital investment possible under current framework
- Higher O&M costs from over-classification

22

Regulatory Framework Pressure To Evolve

- Standards for new designs needed
  - LLWR; SMR iPWRs; non-LWRs
- Need an agreed upon starting point such as "Top Level Design Criteria" as explained in ANS 53.1
- NEI 00-04 "10 CFR 50.69 SSC Categorization Guideline"
- Technology Specific General Design Criteria (How many?)

23

Need for Funding to Support WG

- Develop Statement of Work (grant request)
  - Completed 2014
- Approval of Grant Request
  - (NRC has since 2014

- - - D R A F T - - -

Date: February 6, 2015

PINS: PROJECT INITIATION NOTIFICATION SYSTEM FORM *(Rev. 2012)*

*NOTE: Adoptions of international standards require compliance with ANSI's Sales & Exploitation Policy.

1. Designation of Proposed Standard:	*ANS-30.2*	
2. Title of Standard:	Structures, Systems, and Component Classification and Treatment Criteria for Nuclear Power Plants	
3. Project Intent: (Check the applicable box below)	Supersedes or Affects: (Specify designation of approved ANSI standard(s) or international standard(s)* affected or superseded.)	
Create new standard	X	
*Adopt identical international standard (see Expedited Procedures, Section 1.2.9.2, Annex H: IDT and Annex I)		
*Adopt modified international standard (see Requirements Associated, Section 1.2.9.1, Annex H: MOD and Annex I)		
*AND this adoption revises this current ANS		
Revise current standard		
Revise and Re-designate current standard		
Revise, Re-designate and Consolidate current standard		
Revise and Partition current standard		
Reaffirm current standard		
Reaffirm and Re-designate current standard		
Supplement to a current standard		
Withdraw current standard		
4. This standard contains excerpted text from an international standard, but is not an ISO or IEC adoption.	X	Check here if this standard may include excerpted text from ISO or IEC standards or IAEA Technical Documents but is not an identical or modified adoption of an international standard or TechDoc.
5. Provide an explanation of the need for the project: (If revision, note need for revision due to new reports, tests, data, etc.)	Harmonize several VCS and regulatory documents regarding classification of Structures, Systems, and Components (SSC) for nuclear power plants and their required treatment based on that classification, particularly for new reactor designs. Not all current classification schemes are identical. There is a need for future NPPs to have one common system for classification. This standard applies only to those facilities that must obtain an operating license from the proper regulatory authorities. It may be applied to older power plant designs as the user desires.	
6. Identify the stakeholders (e.g., telecom, consumer, medical, environmental, etc.) likely to be directly impacted by the standard:	Nuclear power plant designers, architect engineers, plant operators, and configuration control engineers.	
7. Scope Summary: (Provide a one paragraph description, not to exceed 650 characters including spaces. Should be written as it will appear in the published standard (present tense verb). If necessary, scope in the published standard may be longer provided that it is editorially the same.	*This standard provides one common component classification process for new nuclear power plants that is technology neutral and, where possible, performance based and risk informed. This classification system will then be used to determine the treatment of those SSCs. This standard applies only to those new design facilities (i.e. greater than Generation III+) that must obtain an operating license from the proper regulatory authority. It may be applied to older nuclear plants as the user desires.*	
8. Consumer Product or Service:		Check here if standard covers Consumer or Service Product
9. Units of Measurement Used: (check one)		Metric ☐ US X Both ☐ NA
10. Accredited Standards Developer Acronym:	*ANS*	
11. Submitter	*Patricia Schroeder, ANS Standards Administrator* *American Nuclear Society* *555 North Kensington Avenue* *La Grange Park, IL 60526* *Phone: 708-579-8269 Fax: 708-579-8248* *Email: pschroeder@ans.org*	

The information on this page is not an official part of the ANSI PINS form. It was designed for ANS Standards Committee purposes to provide more background information about the standard. It is not required that this section be approved, and therefore, shall not be the basis for a not approved vote. Only the ANSI PINS form on page 1 requires approval.

Project #: ANS-30.2 "Structures, Systems, and Component Safety Classification and Treatment Criteria for Nuclear Power Plants

1. Purpose: To create a technology neutral, performance based, risk informed process for determining safety, seismic, and environmental classification system and required treatment of those SSCs for new licensed nuclear power plants. This standard is intended to mold together a variety of structures, systems, and component classification systems that have been used in the past and have become disjointed over the years particularly among seismic, siting, environmental, safety and design criteria and code assignment systems for the variety of risks and performance criteria to be applied to SSC classification.

2. Benefit to Users: The provision of one single standard that can be used for ALL component classification scenarios to avoid duplication, disagreement, random assignments not based on specific risks or performance criteria. Eventually, this process should significantly enhance the plants configuration management system.

3. Will this standard use risk-informed insights, performance-based requirements, and/or a graded approach: Yes

4. Consensus Body: ANS Research and Advanced Reactors

5. Subcommittee under which it is assigned: ANS-29 "Advanced Initiatives"

6. Working Group Chair (s): Donald Spellman, Individual, Cardinal Capital Corporation

7. Working Group Members (including organizations)**:** TBD

8. Interests Represented in Development of Standard (in addition to members' organizations, other affiliations that may be represented important to the development of this standard)**:** All other nuclear SDOs and Government organizations in compliance with OMB Circular A-119 who are responsible for some type of component classification system for nuclear facilities.

9. Coordination and Interfaces (Liaison):

ASME	AREVA
IEEE	Chicago Bridge & Iron
ASTM	Westinghouse
ASHRAE	General Electric
AIChE	Shaw Stone & Webster
DOE AU-30	Sargent & Lundy
U.S. NRC	ISO/IEC
IAEA	

10 Related Standards or References, or Both:

ANS 20.1 (In Development)
ANS 51.1 (Withdrawn)
ANS 52.1 (Withdrawn)
ANS 53.1 (Current)
ANS 30.1 (In Development)
ANS 2.26, 2.27, 2.29 (Current)
ANS 58.14 (Current)
ANS 54.1 (In Development)
IEEE 1819
ASME

11. Project Initiation Date: March 1, 2015

12: Key Words for use in facilitating web searches: Please (X) a limited number of key words that apply to this standard and add a couple of other key words if these are not sufficient:

☐ **Advanced Reactors**	_ **LWRs**	_ **PWRs**
X ALWR	☑ Light Water Reactor	_ Pressurized Water Reactor
X Advanced Light Water Reactors	_ Maintenance	☑ Qualification and Training
X BWR	_ Material Handling	_ Radiological
X Boiling Water Reactor	_ Natural Phenomenon	_ Reactor Physics
☐ Decommissioning	☑ Nuclear Safety	☑ Research Reactor
X Environmental	_ Nuclear Criticality Safety	_ Shielding
X Gas Reactor	☑ Nuclear Power Plant Design	☑ Siting
X HTGR	☑ Nuclear Facility Design	☑ Small Modular Reactor
X High Temperature Gas Cooled Reactor	_ Nuclear Facility Operations	_ SMR
	_ Probabilistic Analysis	
Additional Keywords:		

ANS-30.2 Working Group Member List (in development)

Don Spellman (chair)	cso592@att.net	Chair - ORNL Retired
Jim Pappas	jim.pappas25@yahoo.com	Chicago Bridge & Iron
Bryan Erler PE (alternate)	erlerltd@aol.com	ASME Board of Governors
C. Rick Grantom	crgrantom@STPEGS.COM	ASME BNCS (Retired STNOP)
Ralph Hill	ralphshill@gmail.com	ASME BNCS
Prasad Kadambi	praskadambi@verizon.net	NRC - Retired
Herbert Massie	hmassie625@gmail.com	DNFSC - Retired
John McLean	john.b.mclean@sargentlundy.com	Sargent & Lundy, LLC
Kent Welter	kentwelter@gmail.com	NuScale Power; Inc.
Bill Culp	william.culp@fluor.com	Fluor
Russ Lake	rllake@bwxt.com	BWXT
Ralph Surman	surmanrc@westringhouse.com	WEC
Kristiina Soderholm	Kristiina.Soderholm@fortum.com	Fortum Corporation, Finland

Attachment 13

Status of ANS 30.1

Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs

Mark Linn

ANS Winter Meeting

November 2015

History

- Origin resides in efforts to prepare new ANS-50.1 – Nuclear Safety Design Criteria for Light Water Reactors
  - Combine 51.1 (PWRs) and 52.1 (BWRs)
  - Provide additional guidance on:
    - PRA
    - Safety goals
    - Human factors
  - Draft 7 in February 1994 was last version with significant number of “Not Approved” ballots

History (cont.)

- Resurrected in around 2003
- Update 51.1 and 52.1 separately to
  - Update prescriptive requirements
  - Incorporate risk information
  - Integrate with 58.14, Safety and Pressure Integrity Classification Criteria for Light Water Reactors
- After several years of discussion, revision of 51.1 and 52.1 suspended due to lack of identified need for revised risk-informed standards
- Attention diverted to revision to 58.14 as being more appropriate use of resources

History (cont.)

- In 2012, another effort to generate risk informed performance based design standard was formed with ANS-50.1 – Nuclear Safety Criteria for the Design of Stationary Light Water Reactor Plants
- This eventually incurred the same problems as the mid-2000s efforts of no real customer
- Redirected to ANS-30.1 to concentrate on “new reactor designs” to the exclusion of “existing reactor designs”
- PINS submitted to ASME on August 11, 2015

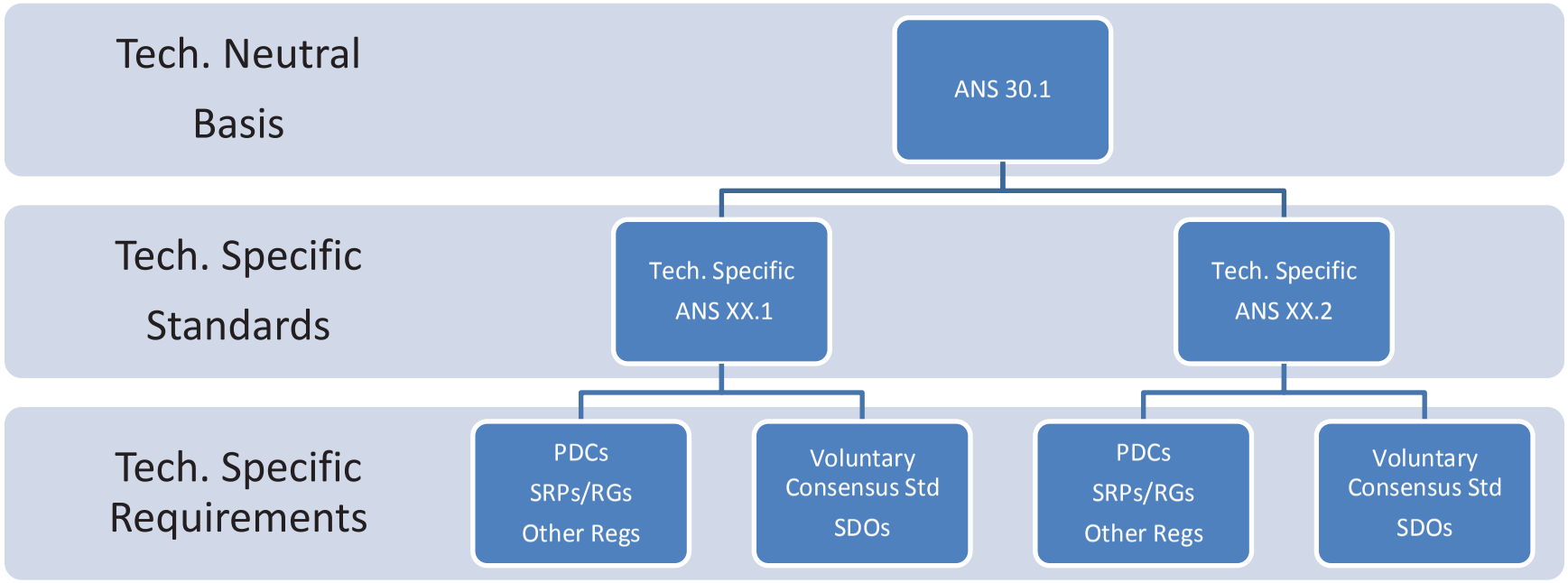
ANS 30.1

- Working Group Backgrounds
  - National Laboratory - PRA
  - Architect-Engineers - Deterministic
  - Nuclear Utility – PRA
  - Foreign Utility – Deterministic
  - SMR Vendors – Deterministic and PRA
  - Consultants – Deterministic and PRA

ANS 30.1

- Scope
  - Includes new reactor designs
  - Excludes existing reactors
- Choice of scope wording flexible
  - Operating reactors – Excluded
  - Advanced Non-LWR – Included
  - Design Certification LLWRs – Likely excluded
  - Design Certification SMRs – Not specifically excluded

ANS 30.1 - Standards Role



ANS 30.1 – Current activities

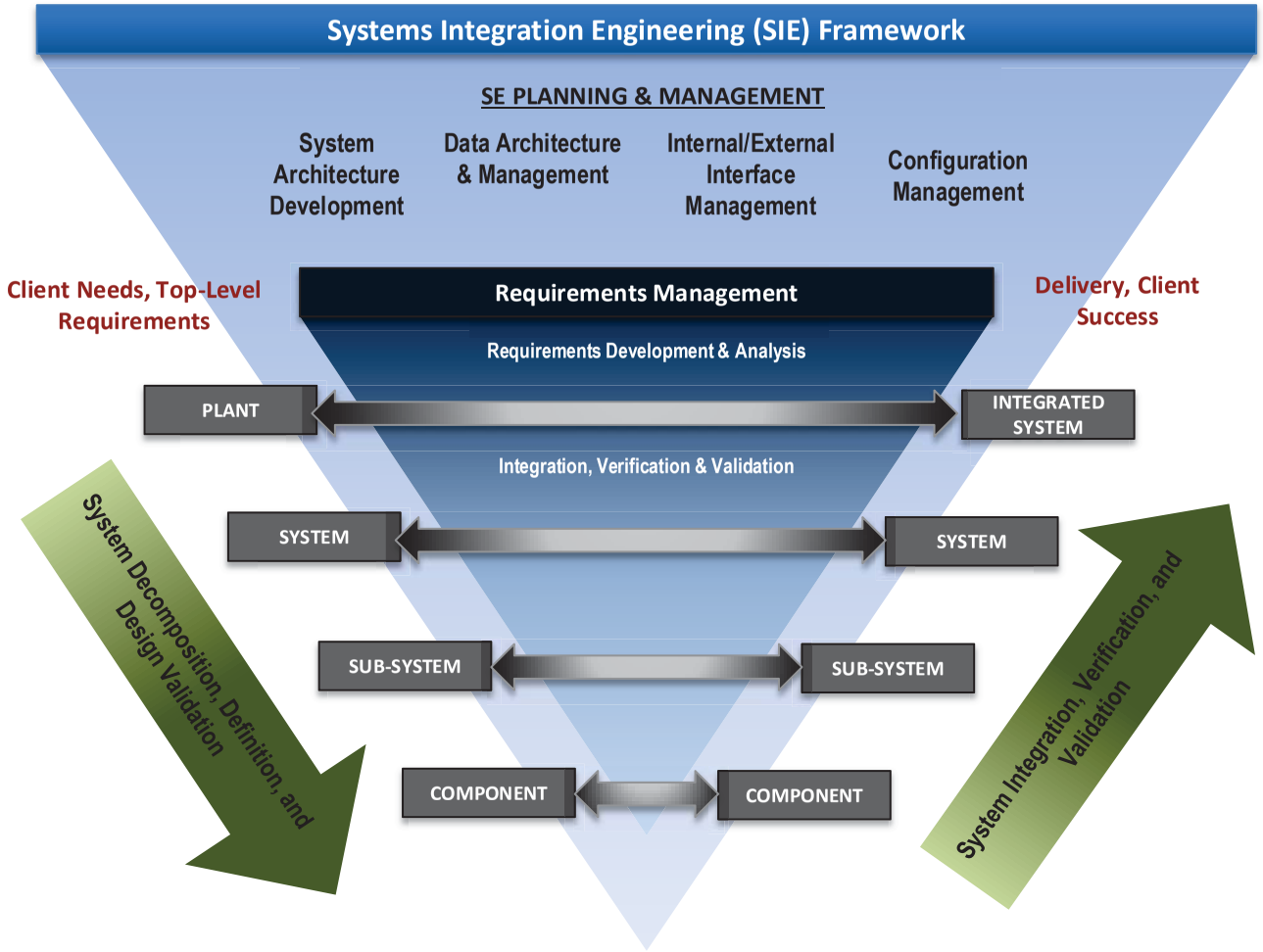
- Foreword
- Chapter 1 – Introduction and Scope Definition
- Chapter 2 – Definitions
- ***Chapter 3 – Regulatory Process***
- ***Chapter 4 – Safety Requirements and Functions***
- ***Chapter 5 – PRA to Support RI Decision Making***
- ***Chapter 6 – Event Identification and Classification***
- Chapter 7 – SSC Classification
- Chapter 8 – Defense in Depth
- Chapter 9 – RI Decision Making for Regulatory Conformance

ANS 30.1

- Moving Forward
  - Draft Chapters 3, 4, 5, 6 by end of January 2016
  - Draft Chapters 7, 8, 9 by end of May 2016
- Engage independent review team in March 2016 to begin **advisory** review of draft material
- Working meeting September 2016 in Chicago to compile final draft for consensus review.

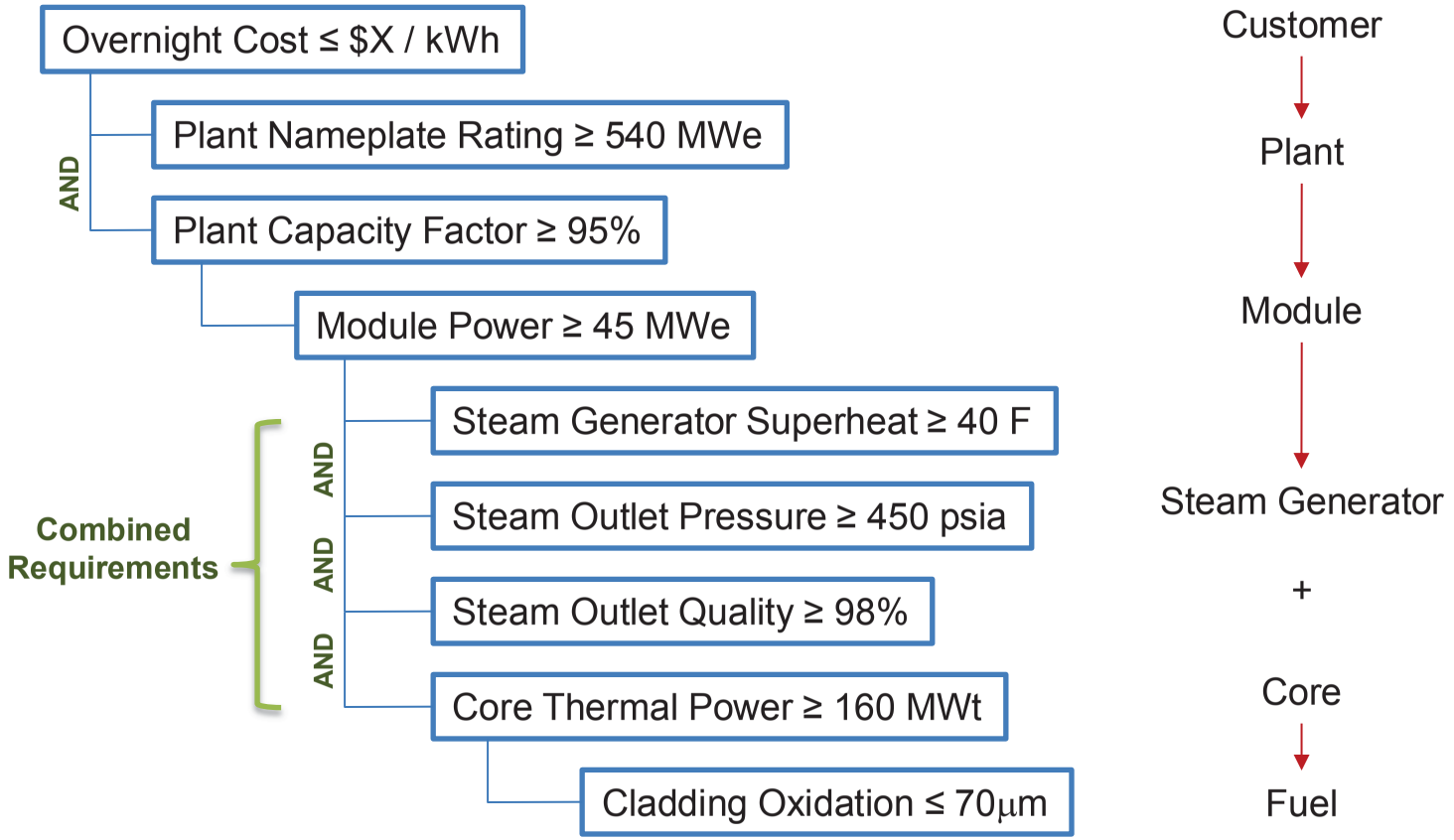
- System Engineering Design Approach

SIE Approach to Requirements Management (Vee Model) – Development Stage



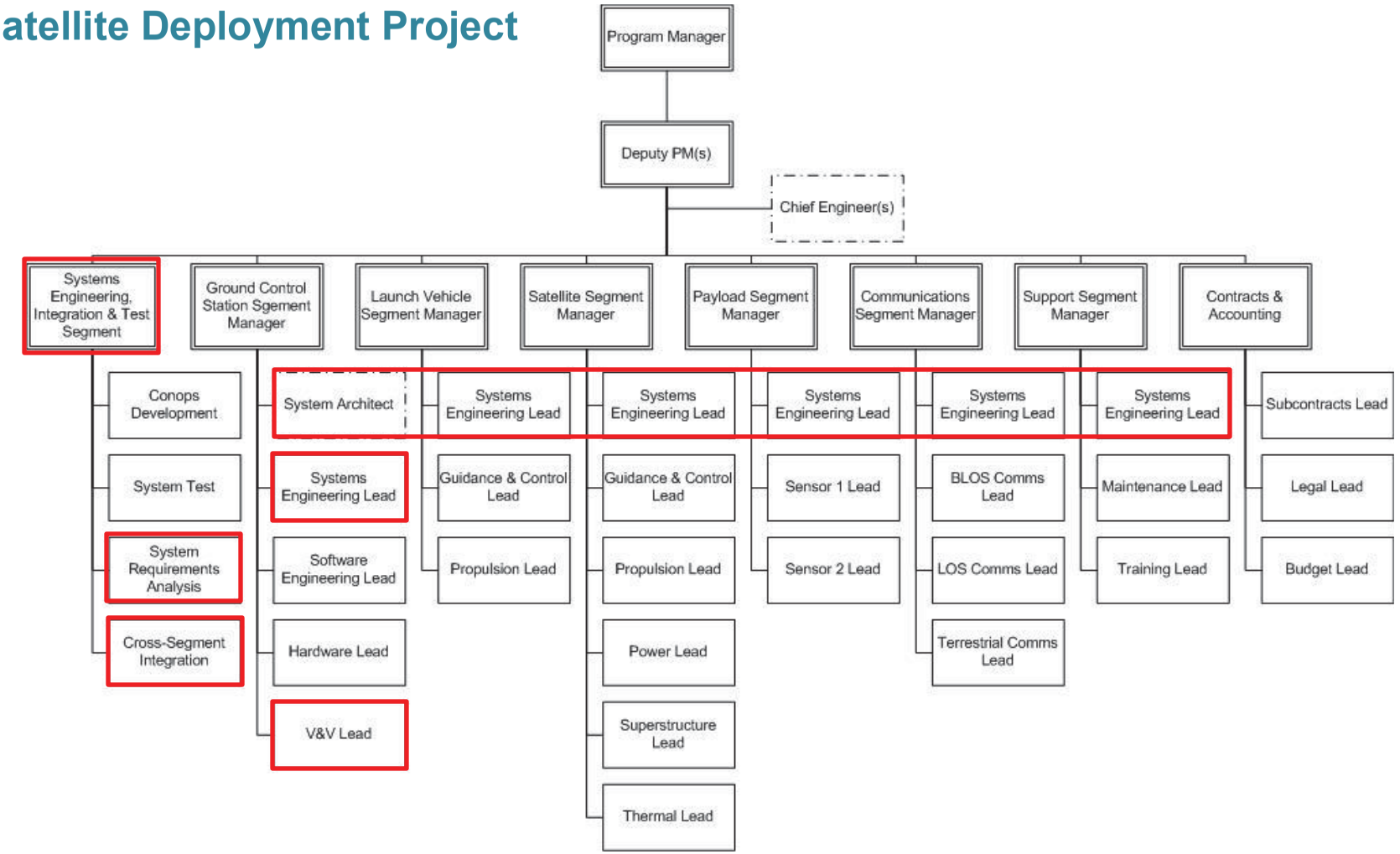
Systems Engineering is a critical enabler between Program Management and Engineering & Development for realizing Client Success.

Example Requirements Decomposition



Example SE Focused Organization

Satellite Deployment Project



Additional Resources

- International Council on Systems Engineering
  www.incose.org
- Systems Engineering Handbook v3 (INCOSE)
- Regal Requirements Management Best Practices Database
  http://www.incose.org/REGAL/Regal.aspx
- NuScale Resources
  Shared Drive:\Safety Analysis\Systems Engineering

ATTACHMENT 14

Patricia Schroeder

From: Flanagan, George F. <flanagangf@ornl.gov>
Sent: Monday, October 26, 2015 8:52 AM
To: Patricia Schroeder
Subject: FW: [Comm-PD] Re: Standards Board liaisons

Please capture this string and insert in the agenda item under area 6 potential new standards under G "other potential standards"

From: Jeff Brault [mailto:jeff_brault@yahoo.com]
Sent: Saturday, October 24, 2015 8:44 AM
To: Mazzola, Carl
Cc: Patricia Schroeder; Flanagan, George F.
Subject: Re: [Comm-PD] Re: Standards Board liaisons

Maybe so Carl, but since my 2016 funding is currently being held up, I am paying my own way to DC. Because of this, I am not registering and leaving on Monday.

George

As you can see from this string, through the PDC communication I let all the division chairs know that the Standards Board will support them find a place for any standards they see a need for. I am in direct contact with the chair of Biology and Medicine. Bryan is going to discuss this at their EC meeting on Sunday. I have offered to show up to discuss this with their EC if they would like.

Please let me know if you would like any thing additional from me before the DC meeting.

Best regards
Jeff

On Friday, October 23, 2015 9:49 PM, "Mazzola, Carl" <carl.mazzola@CBIFederalServices.com> wrote:

Jeff:

This may be a good topic for next month's Standards Board meeting.

Carl Mazzola
Scientist 6/Program Manager

CB & I Federal Services
4014 Hammonds Ferry Road
Evans, GA 30809
(706) 955-3381

From: comm-pd-bounces@list.ans.org [mailto:comm-pd-bounces@list.ans.org] **On Behalf Of** Jeff Brault
Sent: Friday, October 23, 2015 4:28 PM
To: BRYAN BEDNARZ; Professional Divisions Committee
Subject: Re: [Comm-PD] Re: Standards Board liaisons

Hi Bryan

I am very happy you are interested. I can tell you, and all the other divisions, straight out, if there is a standard that is needed, you will have the full support of the Standards Board to either find a place, or create a space for it.

I replied to all because I wanted all the divisions to know that if there are standards needed that don't seem to fit the current organization, we will fix that issue.

Bryan, I will send you a separate email so we can begin to explore your needs.

Best regards
Jeff

On Friday, October 23, 2015 4:16 PM, BRYAN BEDNARZ <bbednarz2@wisc.edu> wrote:

Hi Jeff,

I think this is a great idea (and there is a need) as long as the board would consider a case that involves standards for medical applications. The language on the website leaves some doubt:

http://www.ans.org/standards/sb/

Best,

Bryan

Bryan P. Bednarz, Ph.D.
Assistant Professor
Department of Medical Physics
Wisconsin Institutes for Medical Research
University of Wisconsin-Madison
1111 Highland Ave., L5-176
Madison, WI 53705-2275
o - (608) 262-5225
c - (734) 678-2346
bbednarz2@wisc.edu

From: Jeff Brault <jeff_brault@yahoo.com>
Reply-To: Jeff Brault <jeff_brault@yahoo.com>, Professional Divisions Committee <comm-pd@list.ans.org>
Date: Fri, 23 Oct 2015 19:54:03 +0000 (UTC)
To: Professional Divisions Committee <comm-pd@list.ans.org>
Subject: Re: [Comm-PD] Re: Standards Board liaisons

Bryan

As an alternative perhaps there are some standards needed for the application of radiation in medicine, although these may already be addressed by another Standards Development Organization. You may check at your EC if someone from

your division would be interested in looking into this and potentially taking the path of ANS developing and owning a standard in this field. I would be happy to help offer some guidance of there is interest.

Best regards
Jeff

On Friday, October 23, 2015 2:56 PM, BRYAN BEDNARZ <bbednarz2@wisc.edu> wrote:

Hi Hans et al,

I see on the ANS website that the ANS Standards Committee does not develop standards for the application of radiation for medical purposes. Unless this position has changed, I don't see a benefit of having a Biology and Medicine Division liaison. Perhaps I'm missing something. Of course, we are more than willing to comply if necessary.

Bryan
BMD Chair

Bryan P. Bednarz, Ph.D.
Assistant Professor
Department of Medical Physics
Wisconsin Institutes for Medical Research
University of Wisconsin-Madison
1111 Highland Ave., L5-176
Madison, WI 53705-2275
o - (608) 262-5225
c - (734) 678-2346
bbednarz2@wisc.edu

From: "Gougar, Hans D" <hans.gougar@inl.gov>
Reply-To: Professional Divisions Committee <comm-pd@list.ans.org>
Date: Fri, 23 Oct 2015 09:16:38 -0600
To: PD Comm <comm-pd@list.ans.org>
Subject: [Comm-PD] Re: Standards Board liaisons

Here's a little more info for Standards Board liaisons. Bill Turkowsky will come to the PDC meeting on Tuesday to field questions.

Expectations - Liaison will be expected to participate in Consensus Committee meetings. I believe that there are a couple per year but I don't know if travel is involved.

Benefits of Liaisons

- Professional Divisions and Technical Groups benefit by keeping current on standards and standards projects
- Standards committees benefit by improving access to PD/TG Subject Matter Experts
- Members benefit by professional experience and networking in standards development process

On Thu, Oct 22, 2015 at 9:58 AM, Gougar, Hans D <hans.gougar@inl.gov> wrote:
In a follow-up to my previous note, please find the current but Draft list of SB liaisons by Division. I hope ot have this filled in by the end of the meeting in DC. Thanks

Hans

_____ Comm-PD mailing list Comm-PD@list.ans.org

_____
Comm-PD mailing list
Comm-PD@list.ans.org

_____ Comm-PD mailing list Comm-PD@list.ans.org

ANS Standards Training Program Update

Training Module Development

The following five training presentations have been developed and are available on ANS Standards Workspace:

1) ANS Standards Overview
2) ANS Standards Organization and Staffing
3) Voluntary Consensus Standards Process
4) ANS Standards Governing Documents-Part I
5) ANS Standards Governing Documents-Part 2

In addition, several training sessions on ANS Workspace have been developed and training was initiated in September 2015.

Training Assignment and Scheduling

The subcommittee chairs were responsible for completing the Training Record Form for all of the subcommittee and working group members under their subcommittee. The Standards Board chair and the consensus committee chairs were responsible for completing the Training Record Form for all of their committee members***. As indicated in Pat Schroeder's email sent to CC and SC chairs on 9/16/2015, the training for groups that have not responded will be assigned by ANS staff in accordance with the below ANS STDS TRAINING PACKAGE APPLICABILITY MATRIX.***

The ANS Standards Administrator shall be responsible for scheduling personnel for the training sessions and updating completion status.

The CC and SC chairs shall reevaluate the training needs of their personnel at least annually and when new members join their organizations.

ANS STDS TRAINING PACKAGE APPLICABILITY MATRIX

	SB Members	CC Chair/ VChair	CC Members	SC Chair/ VChair	SC Members	WG Chair/ VChair	WG Members
Overview of Nuclear Related Standards			X	X	X	X	
ANS Standards Organization and Staffing			X	X	X	X	X
The Standards Process		X	X	X	X	X	X
Standards Committee Policies and Procedures	X	X	X	X		X	
Workspace System	X	X	X	X	X	X	X

Table Notes:
SB = ANS Standards Board
CC= consensus committee
SC= subcommittee
WG= working group
VChair= Vice Chair

Training Instructors

Training instructor volunteers were requested in June 2015. Volunteers are still needed. The goal is to have at least 2 training instructors for each training module.

ANS Standards Committee Workspace Trainings

A series of Workspace training webinars were initiated by ANS staff to insure that members receive instruction on how to use Workspace for balloting and commenting, retrieving documents, using the calendar and action items, finding "My Groups," and updating user accounts. More detailed training webinars were offered to standards committee chairs responsible for the management of a workspace. Feedback in general was very positive. However, feedback from members that participated in the training on "Retrieving Comments/Posting Resolutions" expressed the sentiment that the training would likely need to be repeated when a ballot was issued and comments needed to be resolved and posted to Workspace. To accommodate, staff will offer this training to working group chairs when notifying them that a ballot has closed. Because of the similarity of the training on balloting and commenting, staff believes that future trainings can cover both within the same webinar.

Recognizing that it is not possible to accommodate all members at a scheduled time and that some members may have specific need for guidance, specialized trainings can be arranged on request. Several additional trainings will be scheduled throughout 2016. The following trainings have been and/or anticipated to be held:

Trainings Held	**Trainings Scheduled/Anticipated**
8/12/15: High-Level Overview (new users)	11/20/15: Workspace Management for ISO Advisors
8/13/15: General Commenting (all)	
8/19/15: Balloting (all)	**2016 -- 3rd Tuesday of the Month at 2:00pm central**
8/20/15: Commenting (all)	January, May & October: High-Level Overview
8/26/15: Workspace Management (for chairs)	February, April, July, October: Workspace Management
9/16/15: Retrieving Comments/Posting Resolutions (for chairs)	March, August: Balloting & Commenting
9/30/15: Workspace Management (for chairs)	Retrieving Comments/Posting Resolutions available upon request
10/14/15: Workspace Management (for chairs)	
10/28/15: Workspace High-Level Overview (new users)	Specialized training available upon request.

Observations from RP3C Leadership to ANS-SB

Washington DC

November 10, 2015

Promise of Risk-informed, Performance-based Standards

- RIPB standards important for ANS
  - SB Governance Plan takes this position, but actions do not reflect this attitude
- RIPB standards important for Regulators
  - Wide range of NRC staff have expressed need
- RIPB standards important for Industry
  - Superficial support is offered in some quarters
  - Depth of understanding absent

Observations on Impediments

- The use of RI and PB practices must be better understood at the SB and CC level
  - There is greater opportunity from the use of RIPB practices than being pursued today
  - RI and PB practices are separate issues that can be pursued individually
- Strong, visible sponsorship from a majority of SB members is essential but absent
  - RP3C has powers too limited to be the driving force for implementation

Elements for Positive Outcomes

- CC Chairs must be accountable to understand RI-PB in order to identify opportunities, instill knowledge and get results
- Constructive engagement is essential to learn and institutionalize evolving practices
- Applications of risk management should stay within ANS CCs to achieve necessary consistency across volunteer consensus standards and more effective coordination amongst SDOs
- RP3C should serve as one means to establish consistent ways to standardize CC practices and assure effective sharing of lessons learned on RIPB practices

Elements for Positive Outcomes (continued)

- ANS-SB and ASME-BNCS should provide leadership
  - Better communication channels needed for effective governance and oversight
  - Synergies should be identified and communicated
  - Active collaboration between RP3C and SCoRA should be promoted

Near Term Outlook

- Interest in RP3C is growing and attracting new members
  - The new membership creates positive energy and fresh perspectives on the value of using RIPB practices
  - The new membership adds to the resource base working to increase standards utilization generally
  - The new membership brings talent that can be used on specific issues of CCs and SB interest related to RIPB practices
- Absent governance actions for incorporating RIPB features in existing and new ANS-CC – developed standards, RP3C will continue to be ineffective in achieving stated objectives.

ATTACHMENT 18

MEMO TO: RP3C Distribution

FROM: N. Prasad Kadambi, Chair, RP3C

SUBJECT: Summary of Discussion Re. ANS-30.1 Queries

Mark Linn posed a series of questions relevant to his Working Group on ANS-30.1. There has been a considerable exchange of technical views on them. It is hard to keep track of the trains of thought between the discussants. This document is my attempt to summarize the state-of-play on the various issues. I see each of these as being either part or all of individual agenda items at the November 9, 2015 RP3C meeting. I expect to report the results of the discussion to the Standards Board on the following day.

1. Impact of Variation in Criteria Relative to RIPB Standards

There is no inherent problem with different standards using different approaches along the lines of ANS-51.1, 52.1, 53.1, and 54.1. WG ANS-30.1 should focus on the objective of facilitating integrated decision making by users of the standard. Decision making can be facilitated by a performance-based approach that employs a safety case. One proposal to implement this approach is provided in the document, “Policy and Technical Plan for RP3C.”

2. Recommendation on RIPB criteria for frequency-consequence curves

Radiological exposure or dose need not be the only way to construct and employ F-C curves. Alternatives can be proposed that explicitly address performance of functional systems including consideration of safety margins. In a performance-based framework, the greater the margin, the more is the flexibility that can be provided to the user of the standard. This approach will likely require a formal definition of safety margin.

3. Developing and Implementing Criteria for ANS-30.1

A safety construct is offered for consideration that derives its functions from a structure composed of three attributes: (a) Safety Margins; (b) Defense-in-Depth; and (c) Cost-Benefit Analysis. WG ANS-30.1 could consider associating each aspect of the standard as falling under: (1) risk-informed and prescriptive; (2) deterministic and performance-based; (3) risk-informed and performance-based; or (4) deterministic and prescriptive approaches. There are NRC and IAEA reports available to offer more guidance on all these aspects. For example, a graded approach to safety is really implementing a cost-benefit analysis, although perhaps in an ad hoc manner.

4. PRA Misuse

WG ANS-30.1 need not concern itself much on this issue.

5. Application of Single Failure Criterion

SFC is part of defense-in-depth. The question for RP3C is whether any more guidance is needed beyond that which is available with SECY-2005-0138?

6. Interaction with JCNRM

How should RP3C interact with JCNRM?

ATTACHMENT 19

October 26, 2015

In Defense of NRMCC

by

N. Prasad Kadambi, ANS Co-Chair, NRMCC

Historical Background:

The origins of the NRMCC include extended discussions between Ken Balkey and myself in the 2007-2008 timeframe. Ken was either leading or was a member of the ASME BNCS. I was Chair of the ANS Standards Board and also serving on the NRC staff.

Our discussions focused on the long term benefits to the nuclear industry from collaboration and cooperation between the ANS and ASME on voluntary consensus standards. My recollection is that Ken was quite excited by the educational and training possibilities from a broad range of cooperative activities, especially reaching out to the university community and influencing the education of new nuclear professionals in VCSs. The attention of the PRA community at the time was consumed by the need to bring efficiency to the development of Level 1 standards. Everyone involved agreed that two sets of meetings under separate auspices of ANS and ASME did not make sense and was counterproductive. The short term objective of creating JCNRM became a huge priority for both societies.

At the time, the ANS-SB vice-Chair was Don Spellman. Don and I had deep concerns about the adverse impact on ANS as a technical society if large numbers of PRA industry professionals became less involved within the ANS structure. Talking to a number of such professionals, it was quite clear that the fortunes of ANS were not very important to them. Yet, for Don and I, being in the leadership of the ANS SB meant that we needed to worry about this. However, impeding the creation of JCNRM was not an option.

The approach that Don and I took was to create an ANS committee called the Risk Applications Standards Committee. If we accomplished this, creating JCNRM would not inevitably result in adverse impacts on ANS. I saw the possibility of a successful NRMCC that incorporated the vision that Ken and I had spoken about as a definite win-win opportunity. This vision included the possibility of another joint body on risk managed QA so as to more seamlessly address design and operational quality implementation. Hence, I persuaded Don to become the NRMCC co-Chair from ANS to preserve and protect its interests. Unfortunately, Don found himself to be over committed and was unable to serve in the role. Chuck Moseley replaced Don and NRMCC became the body that facilitated creation of JCNRM. The record clearly also shows that NRMCC did not pursue the larger agenda that Ken and I had envisioned.

We now know that the Risk Applications Standards Committee did not happen. Instead, we have the Risk-informed, Performance-based Principles and Policy Committee within ANS.

I addressed the Societal concerns regarding the status of ANS by focusing on developing a memorandum of understanding between ANS and ASME. My thought was that an MOU that laid out formally the scope of ANS standards activity and was signed by ASME would adequately protect ANS interests. The MOU activity was followed on two separate tracks. One track was to develop a business agreement by negotiations between the staffs of the two

societies. This was successfully concluded. The other track was to pursue a more technical type of document that clearly dealt with nuclear activities around which ANS and ASME had strong interfaces. I requested JCNRM leadership to help me formulate a document to accomplish the second track. I even spoke to ASME leadership at an international meeting about this and got what I thought was conceptual agreement on the merits of an ANS-ASME MOU. My request to JCNRM leadership for help went completely unheeded.

Not willing to give up on account of lack of progress regarding an ANS-ASME MOU, I tried to incorporate within the founding document of JCNRM language that would bring clarity to the ANS-ASME interfaces. Again, I requested help from JCNRM leadership on this and received none. As part of this approach, I accompanied ANS staff for a meeting at ASME offices in New York to have more detailed face-to-face discussions. A document was developed that did not give as much protection to ANS as I had sought but was, I thought, progress in the right direction. The record shows that eventually the result of the New York meeting was incorporated into the JCNRM foundational document. The key aspect of this understanding is that JCNRM would pursue a set of PRA methodology standards set out in a Table, and a separate Table itemized standards activities within each society that had interfaces with the other. The second Table had some risk application activities such as risk-informed ISI and IST that were within ASME scope. There were no active ANS projects applying risk concepts. Therein lies the remaining parts of the origins of RP3C. However, as several people can attest about recent meetings, there has been less than full support from JCNRM personnel on RP3C activities.

Current Status of NRMCC:

Going back to the meetings that I had with Ken Balkey, I always thought that the broader scope and reach of the NRMCC gave it a status superior to the JCNRM. It goes without saying that both NRMCC and JCNRM report to the ANS-SB and the ASME-BNCS. However, if either of the Boards wanted to pursue initiatives in education and training related to risk application, for example, it seems obvious that either Board would hand off the initiative to the NRMCC so as to obtain participation from multiple SDOs. The fact that NRMCC has not pursued the training mission that is in its charter does not mean that it should be disbanded. It highlights the need to have NRMCC propose specific projects that would be brought to the two Boards for authorization and assignment of action.

The objective of breaking new ground with NRMCC led me to ask the open ended question of JCNRM members as to what revisions to the existing Strategic Plan they would like to see. Also, JCNRM members representing Owners Groups had repeatedly spoken about their corporate leaders questioning the value added or subtracted to the companies' bottom line from PRA activities. For more than a year, I have been attending public meetings at NRC of Risk Informed Steering Committees. These represented significant resource allocations by industry and NRC. The discussions spent a lot of time discussing PRA technical adequacy and treatment of uncertainty. To me, both these topics involved areas covered by JCNRM standards, but none of the parties seemed inclined to get JCNRM involved. It appeared that there may be lessons to be learned from such observations. I see NRMCC as the body to look into such questions.

There is a lot of work related to risk management that has been done over the past 20 years that points to the importance of including performance-based concepts in order to gain

successful outcomes. The NRMCC has paid very little attention to much of this work. People make claims regarding being performance-based even if there is no effort to present the basis on which such a claim is made. The existing basis for showing that something is performance-based is a set of criteria that the NRC has approved at the highest level. The recent report on a risk management framework, NUREG-2150, endorses that work. The NRMCC could add considerable value by bringing such knowledge to the broad range of institutions and SDOs participating in NRMCC. An important area for new standards development is likely to be the risk-informed applications from the Reactor Oversight Process. This has been shown to be risk-informed and performance-based.

These are merely a sampling of the initiatives that the NRMCC could and should be discussing. It could play a central role in developing the kind of mutual respect and trust that should be an essential part of a consensus process employed by accredited SDOs. Such qualities are at the core of the ANSI Essential Requirements for voluntary consensus standards.

JCNRM Recommendation

The JCNRM Executive Committee apparently voted to recommend disbanding the NRMCC. This motion should have been presented to the NRMCC for information and passed on to the ANS-SB and ASME-BNCS for consideration of appropriate action. The information from the JCNRM Executive Committee should have included reasoning for why the NRMCC Strategic Plan could not be modified as required by the Action Item.

Recommendations:

- The NRMCC should be directed to set itself up as a body that provides the vision, mission, goals, objectives and strategies for the SDOs and their component consensus bodies to fulfill. It should monitor progress regarding implementation of the strategies and report to the ANS-SB and the ASME-BNCS on the extent to which the risk management standards being produced correspond with stated objectives.

- Membership on the NRMCC should be at the policy level and include representatives of SDOs, government institutions, industry groups and international institutions that have ongoing risk management activities. NRMCC does not direct work but offers expert views on direction of the work and reports observations. Votes taken only deal with substance of the observations and the conclusions to be drawn from them.

- NRMCC should be asked to solicit input from a wide range of stakeholders some of whom may not have membership on the body. Such input should be the basis for developing the vision, mission and goals. Implementation activities, including resources, prioritization and schedules, would be under the responsibility of the parent organizations.

- NRMCC should solicit project proposals from consensus bodies (along the lines indicated above) and facilitate identifying and filling gaps. Review of the project proposals would primarily involve offering feedback regarding the validity of data, information and knowledge on which the project may be based and insights from lessons learned from other projects.

- Success for NRMCC would be evidenced by systematic growth in the risk management standards needed to improve economics, efficiency and effectiveness of particular segments of the nuclear industry.

Response from N. P. Kadambi to September 16, 2015 Budnitz-Grantom Memo

[Information Copy Provided to ASME-BNCS and ANS-SB]

Dear Pat and NRMCC Members:

While the Budnitz-Grantom memo of September 16, 2015 offers a useful recitation of the historical background, it totally misses the point relative to what it should have been addressing. As Co-Chair of the NRMCC, representing ANS interests in the coordination efforts, I had requested the JCNRM Executive Committee to discuss a comment from a JCNRM member that raised important questions about the added value of NRMCC relative to JCNRM. It seems to me that, instead of showing real leadership and proposing what NRMCC could be and ought to be doing differently, the Budnitz-Grantom memo totally abdicates this responsibility and opts for an easy way out to justify continuing existing wasteful practices.

My request to the JCNRM Executive Committee was that "...the discussion of previous NRMCC matters should also cover the matter of the comment received from an NRMCC member about the redundancy between JCNRM and NRMCC which will be discussed, I believe, at the previous day's Executive Comm meeting. The point is that we need much more involvement by the risk community as a whole into the strategic plan for NRMCC. Hence, I'd like to see more JCNRM people think about PRA methods when serving on JCNRM but also draw the strategic lessons from such participation that they would like to bring to the attention of the NRMCC."

Since taking over as Co-Chair of NRMCC about two or three meetings ago, I have been trying very hard to get the right people on the committee and to formulate a forward looking revision to the Strategic Plan. We have made some progress bringing new people on to the committee. I have requested JCNRM members at every opportunity to come forward with ways for NRMCC to contribute to improvements in risk management of nuclear technology to address efficiency and effectiveness. It seems to me that the leadership of JCNRM is unwilling to do anything along these lines.

The analysis provided by the Budnitz-Grantom memo is hopelessly stuck in the past. It takes no account of more recent applications of risk methods (such as the Reactor Oversight Process) and major reports (such as NUREG-2150) that ought to be incorporated appropriately into NRMCC discussions. It ignores ongoing initiatives from ANS (RP3C, ANS-30.1, 30.2, 57.11 and 3.13) and ASME (the RIM proposals) in favor of taking cheap shots at previous activities of the NRMCC for which, it must be noted, these very individuals were responsible. Its judgement is quite inaccurate in suggesting that the need for coordination among SDOs has reduced, when there is plenty of evidence that more and better coordination is vital. There is even a bit of misrepresentation being practiced in the statement “The debate was vigorous and thorough, but in the end the decision was unanimous among those attending (with one abstention) to recommend disbanding the NRMCC.” No mention is made of the fact that the ANS Co-Chair was absent and therefore ANS interests may not have been adequately represented. The memo should also have noted the fact that JCNRM is the subordinate body to the NRMCC and good taste would require showing a little more respect.

I look forward to the ANS Standards Board discussion of this matter in November.

Prasad
N. Prasad Kadambi, Co-Chair, NRMCC

NRMCC Charter, with Notes by Bob Budnitz and Rick Grantom showing specific proposals for the "transition" of each NRMCC activity. This represents Rick's and Bob's personal opinions only. 19 October 2015

CHARTER OF THE NUCLEAR RISK MANAGEMENT CORDINATING COMMITTEE

A Nuclear Risk Management Coordinating Committee (NRMCC or "Committee") has been established by the American Nuclear Society (ANS) and the American Society of Mechanical Engineers (ASME).

The Committee coordinates the development and maintenance of Codes and Standards that address risk management and risk-informed decision-making for current and new nuclear power plants (both light water reactors (LWRs) and non-LWRs) and other nuclear facilities, through the full fuel cycle and related applications in order to avoid redundancy in requirements. SEE NOTE 1. The Committee also facilitates the training and use of the resulting Codes and Standards. SEE NOTE 2.

NOTE 1: There are two activities here:
(1) compiling information about each activity, current or new, in "the development and maintenance of the [relevant] standards …" and
(2) developing priorities and recommending which SDO should be responsible for each standard.

Activity (1) is already being done by the JCNRM SCoRA subcommittee. The proposal is that this activity should continue with SCoRA. Activity (2) is necessary if a conflict were to arise requiring prioritization or an assignment to a specific SDO. The proposal is that SCoRA would forward the issue to the main JCNRM Committee, which would then deliberate and make a recommendation to the two governing Boards, the ASME BNCS and the ANS SB.

NOTE 2: The NRMCC's original NRMCC Charter contemplated a role in training. This role was never developed within NRMCC, The proposal is that this aspect of the NRMCC Charter should be dropped. Training should be an appropriate responsibility for each SDO for its own Standards.

The objectives of the Committee are to:

o develop a plan designed to facilitate the implementation and use of nuclear risk-related standards required to meet the identified needs of the user community. SEE NOTE 3

o determine the relative priority of individual standards to guide when their development should be initiated. SEE NOTE 4.

o recommend to standards development organizations (SDOs) who should assume responsibility for the development of each standard with due consideration of the SDO's scope of responsibility, related experience, resource availability, closely related standards, and other ongoing risk-related standards work. These recommendations require mutual acceptance by the interested SDOs. SEE NOTE 5.

NOTE 3: When the NRMCC began in 2003, developing this "plan" was a major and important activity. The need for such a plan has almost disappeared, however, the testament to which is that the NRMCC itself stopped keeping it up-to-date in 2009. The proposal is that the maintenance of this formal plan should be dropped and transferred to SCoRA, with oversight from the JCNRM Main Committee, which will have the responsibility to make subsequent recommendations to the governing Boards.

NOTE 4: As noted in NOTE 1, determining relative priorities should be a responsibility of the governing Boards,

NOTE 5: As noted in NOTE 1, assigning responsibility should be a responsibility of the governing Boards.

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

STRATEGIC PLAN – Sept 2009

NRMCC Strategic Plan (Sept. 2009), with a markup by Rick Grantom and Bob Budnitz. This represents Rick's and Bob's personal opinions only. The markup has commentary and also shows specific proposals for the "transition" of each relevant NRMCC activity.

Member Organizations:

American Nuclear Society
American Society of Mechanical Engineers
Institute of Electrical and Electronic Engineers
U. S. Nuclear Regulatory Commission
U. S. Department of Energy
Nuclear Energy Institute
Electric Power Research Institute
Nuclear Steam Supply Systems Owners Groups

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

STRATEGIC PLAN – Sept 2009

Last Reviewed by NRMCC 09-10-09

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

STRATEGIC PLAN – Sept 2009

NRMCC Strategic Plan (Sept. 2009), with a markup by Grantom and Budnitz
With commentary and also showing specific proposals for the "transition" of each NRMCC activity

CHARTER of the COMMITTEE

Comment [Budnitz 1]:
A markup of the NRMCC Charter is provided in a separate file.

A Nuclear Risk Management Coordinating Committee (NRMCC or "Committee") has been established by the American Nuclear Society (ANS) and the American Society of Mechanical Engineers (ASME).

The Committee coordinates the development and maintenance of Codes and Standards that address risk management and risk-informed decision-making for current and new nuclear power plants (both light water reactors (LWRs) and non-LWRs) and other nuclear facilities, through the full fuel cycle and related applications in order to avoid redundancy in requirements. The Committee also facilitates the training and use of the resulting Codes and Standards.

The objectives of the Committee are to:

- develop a plan designed to facilitate the implementation and use of nuclear risk-related standards required to meet the identified needs of the user community.

- determine the relative priority of individual standards to guide when their development should be initiated.

- recommend to standards development organizations (SDOs) who should assume responsibility for the development of each standard with due consideration of the SDO's scope of responsibility, related experience, resource availability, closely related standards, and other ongoing risk-related standards work. These recommendations require mutual acceptance by the interested SDOs.

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

STRATEGIC PLAN – Sept 2009

KEY INITIATIVES/ISSUES TO BE ADDRESSED

Standards[1] to Support Risk Management Initiatives

1. Ensure that current and emerging standards are developed and maintained to meet the needs of the user community, and are consistent and compatible for ease of applicability.

   Action Plan:

   - The NRMCC provides a forum for coordinating, exchanging technology and information with organizations that are using or that are developing risk-informed Codes and Standards.
   - The NRMCC ensures that these organizations are aware of the activities of the NRMCC and that they receive invitations to all NRMCC meetings. Liaisons will be identified and assigned.
   - The NRMCC will identify specific interfaces with the following organizations:
     - ASME Board on Nuclear Codes and Standards
     - ANS Standards Board
     - Institute of Electrical and Electronic Engineers (IEEE)
     - U. S. Nuclear Regulatory Commission (NRC)
     - U. S. Department of Energy (DOE)
     - Nuclear Energy Institute (NEI)
     - Electric Power Research Institute (EPRI)
     - Nuclear Steam Supply System (NSSS) Owners Groups (OGs)

2. Integrate the methodology set forth in PRA Standards into other application-specific Codes and Standards, as appropriate.

   Action Plan:

   - The table on pages 12 to 14, entitled "Risk Management Development Areas" identifies the risk management applications and activities that are

Comment [CRG2]: JCNRM does this already for ASME and ANS through SCoRA and the JCNRM Exec. Committee

Comment [CRG3]: If NRMCC is sunsetted then this communication will happen through JCNRM and the governing Boards.

Comment [CRG4]: All of these organizations (except the governing Boards and IEEE) are already represented within the JCNRM Committee structure.

[1] The term "Standards" in this document refers to Codes, Standards, or Guides

currently being developed or are envisioned, the responsible organization, and the status of each of these efforts.

3. Develop a plan designed to facilitate the implementation, use, and maintenance of nuclear risk-related Standards required to meet the identified needs of the user community.

   Action Plan:

   Actions have been taken to issue the ASME/ANS Probabilistic Risk Assessment (PRA) Standard for Level 1/ large early release frequency (LERF) (excluding low power/shutdown (LP/SD) plant operating states (POSs)). The following actions are provided to fully meet the intent of Item 3 above:

   - Incorporate LP/SD POSs conditions for Level 1/LERF at-power PRA.
   - Outline process and organizational structure for long-term maintenance of the ASME/ANS PRA Standard (currently ASME/ANS RA-Sa-2009).
   - Complete and issue ASME/ANS Standard for Levels 2 PRA and Level 3 PRA, as assigned to the ANS Risk-Informed Standard Committee (RISC).

4. Work with all stakeholders to implement the Commission's phased approach to PRA technical adequacy according to a reasonable schedule that permits adequate time for PRA development, peer reviews, and pilot programs (as needed).

   Action Plan:

   Work with all stakeholders to –

   - Develop a process that makes these Standards consistent and user-friendly.
   - Establish priorities with respect to risk management activities.
   - Develop a long-term schedule to account for the need complete and peer review Fire PRAs to support NFPA-805 (and other utilities to support Appendix R) and other risk-informed applications.
   - Develop a long-term schedule to account for the need to start, develop, and peer review external hazards PRAs to support risk-informed

Comment [CRG5]: The table on page 12 -14 is largely accomplished by the JCNRM strategic plan. There may be some additional scopes to be worked on but these can be approved, developed, and published within the existing JCNRM framework consistent with governing Board approvals

Comment [CRG6]: This activity is subsumed by SCoRA

Comment [CRG7]: The details of this action plan have been accomplished by the JCNRM.

Comment [CRG8]: The JCNRM membership is already comprised of all the important stakeholder organizations that wish to participate.

Comment [CRG9]: This action plan has been accomplished through JCNRM, Owner's Groups, NEI, and EPRI all of which are represented in JCNRM.

applications. Schedule should consider the need for pilot program for first-of-a-kind activities.

5. Work with all stakeholders to develop its plans to implement 10CFR50.69.

Comment [CRG10]: Support for 50.69 implementation and this Action Plan are now within JCNRM/SCoRA under the Implementation Project Team. SCoRA has reached out to other BNCS committees, NQA specifically, to start this activity.

Action Plan:

- Support the NRC plan for the implementation of the Commission's phased approach to PRA technical adequacy.

  [Note: Both ANS and ASME have provided extensive comments to the NRC to address the Advanced Notice of Public Rulemaking to Make 10CFR50 Requirements Risk-Informed and Performance-Based.

- Support the development and implementation of codes, standards, and guidelines for risk-informed, performance-based applications using the risk significance categorization processes endorsed for 10CFR50.69.

Training:

Comment [CRG11]: It is recommended that the training aspect of NRMCC's Charter be dropped, and that responsibility for training revert to the ANS and ASME governing Boards, as appropriate.

1. Define appropriate training and qualification initiatives for users of risk-informed standards, including Integrated Decision-Making Panels.

Action Plan:

- Work with all stakeholders to develop a PRA Standards training course to provide a clear understanding of the content and application of the subject standards such that there would be consistency and uniformity in applying the standards by different individuals within a spectrum of organizations.

- Design the training course to be comprised of two modules for different types of users – an overview and a more detailed course for practitioners.

- The training course should be developed using the Institute of Nuclear Power Operations (INPO) Systematic Approach to Training (SAT).

STRATEGIC PLAN – Sept 2009

Current Status of Operating LWR Projects[2,3]

Comment [CRG12]: All of the items under Current Status are within the current responsibility of JCNRM. JCNRM is actively managing these Standard, and has reported progress over the last several years to BNCS and ANS SB.

The ASME Committee on Nuclear Risk Management (CNRM) and the ANS Risk-Informed Standards Committee (RISC) have the responsibility for development of consensus standards. Guidance can also be provided. However, such actions should be discussed with the NRMCC prior to ASME or ANS doing this work.

ASME CNRM has accepted the overall responsibility to develop and maintain a new ASME/ANS Standard that incorporates the requirements to determine the technical adequacy to support risk-informed applications using a Level 1/LERF PRA (estimating core damage frequency CDF)) supplemented by an estimation of large early release frequency (LERF) for three plant operating conditions (power, low power, and shutdown), and for accidents initiated by internal hazards (including internal events, internal floods and internal fires), and external hazards (including external flood, seismic events, and wind). ANS RISC has accepted the overall responsibility to develop and maintain new ASME/ANS Standards to ascertain Level 2 PRA and Level 3 PRA technical adequacy to support risk-informed applications.

- An ASME/ANS PRA Standard has been issued as ASME/ANS RA-Sa-2009, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications" (this is Addendum A to Revision 1). Revision 1, Addendum A of the PRA Standard has been endorsed by the NRC via Regulatory Guide (RG) 1.200, Revision 2, issued in March 2009.

- Low Power/Shutdown (LP/SD) – ANS RISC is preparing a LP/SD PRA Standard for incorporation into the above mentioned ASME/ANS PRA Standard.

- Extend PRA to full Level 2 PRA and Level 3 PRA – ANS RISC has established two writing groups to prepare these new standards.

[2] Current Projects are defined as those that are key to the organization's overall risk-informed efforts. They do not include sub-level projects (e.g., Code Cases, specialized research projects, etc.) that have no effect on the coordination efforts of the Committee.
[3] Related NRC and NEI efforts are summarized in Appendix A.

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

STRATEGIC PLAN – Sept 2009

Risk-Informed Developments for New LWRs

Identify needs, priorities and timing for development of new or modification of existing Standard(s) to address unique PRA requirements for new LWRs.

Action Plan:

- The NRMCC will assign a New Reactor Task Group to develop recommendations in this area.
- The committee works with industry, NSSS vendors and NRC on risk initiatives needed to support 10CFR52 licensing for new LWRs.
- ASME CNRM has established a project team to address changes in the existing LWR standards to treat new plant licensing, design and construction phases as well as unique requirements for advanced LWRs.
- ANS RISC will support the standard, providing expertise in Low Power/Shutdown and Level 2 and Level 3 PRA.
- Pending formation of a joint ANS/ASME committee and new agreements that may result, both societies will ballot this standard.

Risk-Informed Developments for Advanced Non-LWRs

Determine the need for a Standard to assess the technical adequacy of a PRA to support risk-informed applications and risk-informed safety classification scheme, to assist the advanced non-LWR designs.

Action Plan:

- ANS is addressing safety classification requirements for high temperature gas-cooled reactors (HTGRs). ASME is developing complementary risk-informed safety classification requirements for pressure boundary systems and components.
- ASME CNRM has established a project team to address the PRA standards needs for the advanced non-LWRs, such as HTGRs. This standard includes development of PRAs to be used in the design and construction stage. In addition, the ASME/ANS PRA Standard is being reviewed in detail for applicability for future reactors and identification of missing needed guidance.

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- ANS RISC will support the standard, providing expertise in Low Power/Shutdown and Source Term and Consequence Analysis, as appropriate.
- Pending formation of a joint ANS/ASME committee and new agreements that may result, both societies will ballot this standard.

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

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PROPOSED LONG TERM PROJECTS

- Assign a Task Group to investigate approaches for the development of a Life Cycle, Risk-Informed Nuclear Code.
- Determine need for, and, if appropriate, develop standards for Qualification of RISC-3 items (Safety-Related, Low Safety Significant SSCs).
- Address PRA for other nuclear facilities, transportation and storage of nuclear materials, and related activities.
- Develop risk methodology to address terrorism threats at nuclear power plants.
- Promote use of risk-informed approaches in the design, safety review, licensing and operation of nuclear facilities.

Comment [CRG13]: These items would be processed through JCNRM just as any other new standard initiative would from ASME or ANS. Some of these are also topics currently under discussion at BNCS or within various ANS groups under the ANS SB.

Comment [CRG14]: This is part of 10-CFR50.69 implementation already discussed above. But this would be within JCNRM scope and would also need to be coordinated with other BNCS and ANS SB committees. For example, as is being done between JCNRM and NQA.

Comment [CRG15]: This is within the charter of JCNRM and would include items in the table later in this document.

Comment [CRG16]: No initiative has yet started on this item, nor has this issue been raised. If it is raised, it would fall, like to other technical issues, into the scope of the JCNRM.

Comment [CRG17]: Various initiatives related to this item are currently under discussion within both ANS and ASME-BNCS.

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Risk Management Development Areas

Risk Management Standard/Guideline Scope of Activities Risk Management Activity	Risk Management Area of Responsibility Completed	Development Underway (In Review)	Approved & In Use	Document Number	Owning Organization Completion Schedule Responsible Organization	Scheduled Year for Development
Performing a PRA						
At-Power Internal Hazards Level 1	X		X (add. a.)	ASME/ANS RA-Sa-2008,	~~CNRM~~ ASME/ANS JCNRM	
At-Power Internal Hazards Level 2	X	~~X~~			~~ANS RISC~~ JCNRM	
At-Power Internal Hazards Level 3	X	~~X~~			~~ANS RISC~~ JCNRM	
Low Power/Shutdown Internal Hazards Level 1	X	~~X~~		ANS-58.22	~~ANS RISC~~[4] JCNRM	
Low Power/Shutdown Internal Hazards Level 2		X		ANS-58.24	~~ANS RISC~~ JCNRM	Unknown
Low Power/Shutdown Internal Hazards Level 3		X		ANS-58.25	~~ANS RISC~~ JCNRM	Unknown
External Hazards (At-Power)	X		X	ANS-58.21	~~ANS RISC~~ JCNRM	
External Hazards (Low Power/Shutdown)					~~ANS RISC~~ JCNRM ASME/ANS JCNRM	
Fire PRA (At-Power)	X		X	ANS-58.23	ASME/ANS JCNRM	
Fire PRA (Low Power/Shutdown)					~~ANS RISC~~[4]	Unknown
Seismic PRA (At-Power)	X		X	ANS-58.21	~~ANS RISC~~ JCNRM	
Seismic PRA (Low Power/Shutdown)					~~ANS RISC~~[4] ASME/ANS JCNRM possible augmented support from other ANS committees	Unknown
Uncertainty Analysis					ASME/ANS JCNRM possible augmented support from other ANS committees	
Data Analysis					ASME/ANS JCNRM possible augmented support from other ANS committees	

[4] ANS RISC has the initial responsibility to develop these requirements. Then, they are to be incorporated into ASME/ANS RA-Sa-2009 and will become the responsibility of ASME CNRM.

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

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Risk Management Standard/Guideline Scope of Activities Risk Management Activity	Risk Management Area of Responsibility				Owning Organization Completion Schedule	
	Completed	Development Underway (In Review)	Approved & In Use	Document Number	Responsible Organization	Scheduled Year for Development
Spent Fuel Pool PRA					ASME/ANS JCNRM possible augmented support from other ANS committees	
Dry Cask Storage PRA					ASME/ANS JCNRM possible augmented support from other ANS committees	
Spent Fuel Shipping & Handling PRA					ASME/ANS JCNRM possible augmented support from other ANS committees	
PRA for Instrumentation						
Severe Wind PRA	X		X	ANS-58.21	ASME/ANS JCNRM	
Probabilistic Threat Assessment (Security)					Undecided	
Qualification of PRA Personnel						
Combined PRA Standard	X ASME/ANS RA-Sa-2008				~~ASME CNRM/ANS RISC~~ ASME/ANS JCNRM	
Maintaining a PRA						
General PRA Update Process					THESE ITEMS ARE ALREADY IMPLEMENTED INTO UTILITY AND OWNER'S GROUP PROCESSES	
Specific PRA Update Process						
Process for Periodic Review and Peer Review of PRA & PRA Applications						

NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE

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Risk Management Standard/Guideline Scope of Activities Risk Management Activity	Risk Management Area of Responsibility				Owning Organization Completion Schedule	
	Completed	Development Underway (In Review)	Approved & In Use	Document Number	Responsible Organization	Scheduled Year for Development
PRA Software Quality Assurance						
PRA Upgrades						
Process for Approving New Methods						
Process for Implementation of New Methods						
PRA Applications						
PRA Risk Ranking					Implemented as part of 10CFR50.69	
Risk Significance Categorization					Associated NEI 00-04 could be turned over to JCNRM to make into a guide or standard	
PI-IST					SCoRA to coordinate with BNCS O&M	
PI-ISI					Implemented, Section XI supporting	
BNCS Strategic Plan Initiatives		X (ASME)				
RI Emergency Planning						
Work Activity Risk Assessment						
Risk Informed Technical Specifications					Implemented through NEI 06-09	
Option 3 – Large Break LOCA, etc.					RI GSI-191 could subsume this item, pilot still under NRC review	

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Risk Management Standard/Guideline Scope of Activities Risk Management Activity	Risk Management Area of Responsibility				Owning Organization Completion Schedule	
	Completed	Development Underway (In Review)	Approved & In Use	Document Number	Responsible Organization	Scheduled Year for Development
Configuration Risk Management Programs					Implemented through 50.65(a)(4) and NUMARC 93-01, Could eventually be turned over as a standard	
10CFR50.69 Implementation		X (ASME)			Under SCoRA's Implementation Working Group	
Risk Informed Treatment Strategies		X (ASME)			NQA with support from SCoRA	
RI-MOV Program					O&M ISTE with support from SCoRA	
RI-Procurement Program					Not started, Part of 50.69 Implementation	
RI – Equipment Qualification Program					Not Started, Part of 50.69 Implementation	
RI – Categorization Process for Passive, Inherently Reliable Structures, Systems, and Components		X ASME Code Cases N-660, N-720			ASME O&M, also part of 50.69 implementation	
RI-Design Engineering Program					Not developed as yet	
Process for Risk Informing Engineering Programs					Not developed as yet	

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Risk Management Standard/Guideline Scope of Activities Risk Management Activity	Risk Management Area of Responsibility				Owning Organization Completion Schedule	
	Completed	Development Underway (In Review)	Approved & In Use	Document Number	Responsible Organization	Scheduled Year for Development
Risk-Informed Safety Classification		X (ANS)			ANS Committee 28	
Risk Management Decision Making						
Risk Management Expert Panels (Integrated Decision-Making Panels)		X (ASME)			O&M has some discussion in ISTE but more comprehensive version needed; targeted for SCoRA, Implementation Working Group	
Risk Informed Working Groups					Undeveloped	
Assessment of Aggregate Effects					Undeveloped	
Risk Informed Organizational Decision-Making					Undeveloped	
Generic Failure Rate Data Base					Industry and Owner's Group efforts	
Risk informed Standards Training		X			ASME Stds. Tech. LLC	
Process for Risk Informing Engineering Programs					Undeveloped	

STRATEGIC PLAN – Sept 2009

Appendix A

RELATED NRC AND NEI EFFORTS

- NRC issued RG 1.200 Rev. 1, for Trial Use to address PRA quality and regulatory positions on the ASME PRA Standard, and the NEI Peer Review Process. NRC has issued RG 1.200 Rev. 2 to endorse the use of the ASME/ANS PRA Standard (ASME/ANS RA-Sa-2009) incorporating internal fires and external hazards PRAs.

Comment [CRG18]: RG 1.200, Rev. 2 has now been issued

- NRC has published NUREG/CR-6823, Handbook of Parameter Estimation for Probabilistic Risk Assessment. This handbook was generated to support such documents as ASME-RA-S-2002 by providing a compendium of good practices that a PRA analyst can use to generate the parameter distributions required for quantifying PRA models.

- NRC has published Revision 1 to NUREG/CR-6595 for public review and comment. This revision expands the simplified approach for estimating Large Early Release frequency (LERF) to address low power and shutdown conditions. Revision 1 to this NUREG/CR is intended to support the ANS low power shutdown PRA Standard.

- NRC has published NUREG-1792, "Good Practices for Implementing Human Reliability Analysis," April 2005 and NUREG-1842, "Evaluation of Human Reliability Analysis Methods Against Good Practices," September 2006. As with the Parameter Estimation Handbook, these documents are also providing a compendium of good practices that a PRA analyst can use to perform the HRA required in a PRA.

- NRC has published NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making," March 2009. This document provides guidance for identifying and characterizing the uncertainties associated with PRA, for determining the impact of the uncertainties on the results of the PRA, and for factoring the results of the uncertainty analyses into the decision making. It is a companion document to EPRI's "Treatment of Parameter and Model Uncertainty for Probabilistic Risk Assessments," EPRI TR 1016737, December 2008.

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- NRC officially issued 10 CFR 50.69 ("Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors") in the U.S. Federal Register on Nov. 22, 2004 as one of the initiatives to risk-inform regulations. Industry pilot plant efforts have been underway in order to provide submittals per 10 CFR 50.69. A draft safety evaluation report has been recently issued for an application at Wolf Creek that addresses an NEI Categorization Process Guide and ASME risk-informed repair/replacement activities.

Comment [CRG19]: Other plants are pursuing 50.69. Southern Co. just received SER for Vogtle that now joins STP. Diablo Canyon is preparing license amendment request for submittal in 2015 or early 2016.

- NEI has prepared a final Risk-Informed Categorization Process Guideline, NEI 00-04. It is intended to be an industry guidance document. More detailed guidance is needed for site specific implementation and development of site specific procedures as a lesson learned from operating experience in station implementation.

- NEI has requested that EPRI develop seismic and environmental qualification guidance for RISC-3 SSCs. Guidance exists in NEI 00-04 and industry experience has used "Targeted" and "Augmented" grades of QA to address RISC-2 and RISC-3 SSCs. Existing industrial programs and processes are sufficient for these SSCs in conjunction with Targeted and Augmented QA programs.

- Advanced Reactors – The NRC has published NUREG-1860, "Feasibility Study for a Risk-Informed and Performance-Based Regulatory Structure for Future Plant Licensing," December 2007. This NUREG document outlines a "framework" that provides an approach, scope and criteria that could be used to develop a set of risk-informed and performance-based requirements that would serve as an alternative to 10 CFR Part 50 for licensing future nuclear power plants. The NRC has provided an NGNP licensing strategy to Congress (August 2008) and is developing user needs.

- The NRC is sponsoring the development of a "Roadmap" as a guide to the R&D and Code development tasks that should be considered in developing rules for High Temperature Gas Cooled Reactors (HTGRs). The primary focus of the Roadmap is on the development of a complete set of rules for the design and operating conditions that are being proposed for the Next Generation Nuclear Plant (NGNP) demonstration unit in collaboration with the U.S. Department of Energy. While the majority of the roadmap is

devoted to the development of standards for addressing materials and reactor system design related to pressure boundary integrity, the document is incorporating the need for rules for PRA for advanced reactors. The Roadmap should be soon completed.

ATTACHMENT 21

Patricia Schroeder

From: Steven Stamm <ssn617@comcast.net>
Sent: Monday, October 19, 2015 6:22 PM
To: 'Bob Budnitz'; flanagangf@ornl.gov; longgray65@nc.rr.com; kadambiecpl@gmail.com; Patricia Schroeder; HillRS@westinghouse.com; Clayton.T.Smith@fluor.com
Cc: 'Carl ("Rick") Grantom'
Subject: RE: Budnitz-Grantom draft of "transition plan" information for NRMCC

I took a quick look at the attachments and offer the following comments and suggestions for ANS SB consideration:

- We should not attempt to approve this transition plan for our November meeting, more time and work are needed.
- We should probably appoint a small ad-hoc subcommittee to do a detailed review, the results of which would be submitted to ANS SB for approval.
- JCNRM needs to remain as a consensus committee subordinate to ASME BNCS and ANS SB and should not be given responsibility for directing any Risk activities within the mother organizations (Other than those needed for development of assigned standards). At most JCNRM may make recommendations. I may be wrong, but it felt like the JCNRM was directing the ANS and ASME boards on some issues.
- The interface responsibility with external SDOs for any risk activities other than those directly related to JCNRM developed standards should be the responsibility of ASME and ANS standards boards.
- No additional standards should be assigned to JCNRM from the NRMCC transition plan without a case by case approval from ASME/ANS. Many of the standards on the list probably should stay with the mother organizations.

We may not even need a transition plan beyond than the bullets listed above.

I would like to hear the following items during the SB discussion of this subject:

- What were the major points discussed that lead to the NRMCC dissolution vote?
- Was the vote unanimous? If not how did each member vote?
- What had NRMCC accomplished during its existence?
- What NRMCC activities were in progress in a meaningful manner?

Steven Stamm

617 513 5785

From: Bob Budnitz [mailto:budnitz@pacbell.net]
Sent: Monday, October 19, 2015 5:25 PM
To: flanagangf@ornl.gov; ssn617@comcast.net; longgray65@nc.rr.com; kadambiecpl@gmail.com; pschroeder@ans.org; HillRS@westinghouse.com; Clayton.T.Smith@fluor.com
Cc: Carl ("Rick") Grantom; Robert J. Budnitz
Subject: Budnitz-Grantom draft of "transition plan" information for NRMCC

TO: George Flanagan, Steve Stamm, Chuck Moseley, and Pat Schroeder (ANS)
TO: Ralph Hill and Clayton Smith (ASME)
TO: Prasad Kadambi (co-chair, NRMCC)

FROM: Bob Budnitz (co-chair, JCNRM)
[also from Rick Grantom (co-chair, JCNRM and also co-chair. NRMCC), who concurs in this note and its attachments]

SUBJECT: NRMCC "TRANSITION PLAN" OF "PLAN FOR THE DISPOSITION OF THE VARIOUS NRMCC RESPONSIBILITIES"

[We are sending this for the moment only to the senior BNCS and SB leadership, plus Chuck Moseley (former co-chair, NRMCC) and Prasad Kadambi (current co-chair, NRMCC.) We seek your input and review. After that, we believe it essential to send this to the full NRMCC membership for their review -- although the NRMCC voted in September to disband itself, the membership certainly needs to review this material.]

Two documents are attached here.

Rick Grantom and I have been working recently to develop a "transition plan" for the various functions of the NRMCC. We have now done so -- at least, we've developed our mutual position. It is embodied in two documents, attached:

1) Attached is our mark-up of the NRMCC CHARTER (from 2003). The mark-up contains notes embedded in the text that describe our proposal for the transition (or disposition) of each function in the NRMCC Charter. If the NRMCC is disbanded, then for each NRMCC function, we describe how it would be carried out in the future.

2) Attached is our mark-up of the NRMCC Strategic Plan, specifically our markup of the version of Sept. 2009 (the latest one.) We have indicated in the markup exactly what has happened in the intervening 6 years concerning each item in the Strategic Plan. For most of them, the JCNRM has taken up the item, and has either completed it or is now working on it. For a few, work is going on outside of the JCNRM. For a few others, neither the JCNRM nor any other body is currently working on the item, for any of various reasons that are very item-specific. We believe that there are few if any important "loose ends," if one accepts our (Rick's and my) assignment of how each item either has been coped with or will be, or why it has lower priority now.

Please give us your review pronto. We would like to make a report on this to the ANS Standards Board at their November 10 meeting, if we can.

Regards, Bob

****

Robert J. Budnitz

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Reflection on Providing Responses to Inquiries

Background:

Standards Board Vice Chair Steven Stamm asked that I address responses to inquiries as I have expressed concern with a number of responses that have exceeded our required six-month response period. At a previous meeting, I questioned whether an approach used by the American Society of Mechanical Engineers (ASME) might be beneficial in some instances. Each ASME consensus committee has a special committee responsible for developing responses to inquiries. This special committee augments its membership based on the inquiry to include appropriate expertise. The response is then approved by the consensus committee. This option was not found acceptable by Standards Board members.

Understanding the importance of responses to inquiries, I've prepared a log of responses to inquiries (those relevant and not a case interpretation) received since 2005. I have also summarized the issue and my concerns as well as provided a few thoughts for consideration. I look to the ANS Standards Board for suggestions and comments to help streamline our process or modify our policy.

Issue and Concerns:

The American National Standards Institute (ANSI) requires that each ANSI-Accredited Standards Developer (ASD) has a policy on providing "interpretations" ("interpretations" is ANSI's term for providing responses to inquiries on standards). The policy may be that the ASD does not provide interpretations. Our policy is that the ANS Standards Committee shall make timely responses to inquiries about requirements, recommendations and/or permissive statements (i.e., "shall," "should," and "may," respectively) in American National Standards that are developed and approved by ANS provided the response is not a case interpretation. The policy dictates that the response be approved through the consensus process and that the response shall be provided to the requestor within six months.

A review of the records since 2005 found that 36 inquiries have been received one of which was only a few weeks ago. Of those received more than six months ago, 16 responses or 46% were provided within six months. There are various reasons why a timely response was not provided. Often the difficulty can be attributed to the lack of an active working group.

Since our policy requires that a response is provided within six months, individuals that do not receive a response within this time may submit a complaint to ANSI. Additionally, ANSI audits all aspects of our program including responses to inquiries to insure that we comply with our policy. Luckily, I was given the flexibility to choose files for responses to two inquiries to show ANSI that we comply. Had ANSI asked for all or specific inquiry files, we would have likely been cited with noncompliant findings. Although responses are developed and approved by members, ANS staff is responsible for answering to ANSI when found out of compliance. Your thoughts and consideration of this issue are appreciated.

Thoughts for consideration

- Is the 46% rate of proving a timely response sufficient?
- Should the policy be changed from a requirement to a recommendation that the response be provided within six months?
- Do you have any suggestions to streamline the process?
- Do we need to be more selective on providing responses to inquiries?
  - While the inquiries are relevant to the standard in question and not a case interpretation, some may not directly ask a question about a requirement, recommendation, or permissive statement. Should a response be provided?
  - Should the policy be changed to limit responses to inquiries on requirements only?
  - Should the policy apply only to standards that ANSI recognizes – current American National Standards?

Responses to Inquiry Log 2005-2015

(inquiries deemed relevant and not case interpretations)

Year	Inquiry Received	Designation	Response Issued	Development/Approval Duration
2015	5-Oct	ANS-3.4	-----	OPEN: Received 1 month ago
	17-Mar	ANS-56.8	6/30/2015	3 months
	11-Mar	ANS-8.3	5/27/2015	2 months
	12-Jan	ANS-55.1/55.6	-----	OPEN: Received ~10 months ago
2014	10-Aug	ANS-57.1	-----	OPEN: Received ~15 months ago
	15-Jul	ANS-56.8	1/9/2015	6 months
	10-Jul	ANS-2.3	9/24/2014	2 months
	20-May	ANS-8.19/8.26	10/27/2014	5 months
2013	18-Dec	ANS-15.4	3/3/2015	4 months
	9-Jan	ANS-8.19	12/20/2013	11 months
2012	20-Jul	ANS-19.6.1	11/11/2012	5 months
	6-Apr	ANS-18.1	6/11/2013	14 months
	2-Mar	ANS-18.1	6/11/2013	15 months
	11-Jan	ANS-8.3	5/2/2014	28 months
2011	5-Sep	ANS-6.4.3	6/22/2012	9 months
	28-Jun	ANS-2.26	7/16/2012	13 months
	9-May	ANS-8.3	2/13/2012	9 months
	25-Apr	ANS-5.1	10/11/2011	6 months
	14-Feb	ANS-56.2 (N271)	5/27/2011	3 months
	24-Jan	ANS-58.14	7/25/2011	6 months
2010	15-Jul	ANS-19.6.1	9/27/2010	2 months
	8-Apr	ANS-19.6.1	5/21/2010	1 month
	2-Mar	ANS-8.3	9/9/2010	7 months
	17-Feb	ANS-57.5	5/21/2010	3 months
2009	13-Nov	ANS-3.5	10/20/2010	11 months
	13-Oct	ANS-3.5	10/20/2010	12 months
	20-Aug	ANS-5.1	9/1/2009	1 month
	13-Aug	ANS-3.4	11/17/2010	15 months
	29-Jun	ANS-6.4	7/9/2009	1 month
2008	17-Dec	ANS-19.6.1	3/9/2009	3 months
	1-Dec	ANS-56.8	9/2/2009	9 months
	24-Nov	ANS-58.9	7/31/2009	8 months
	20-Aug	ANS-8.19	3/4/2009	7 months
2007	29-Oct	ANS-8.1	10/28/2009	24 months
	3-Apr	ANS-6.1.1	3/14/2008	11 months
2006	12-Dec	ANS-3.5	2/17/2009	26 months
	19-Oct	ANS-56.8	11/6/2008	25 months
2005	26-Nov	ANS-58.2	11/25/2014	108 months

NCSCC Chairman's Report to the ANS Standards Board
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PINS in Development (2)

- ANS-8.22, "Nuclear Criticality Safety Based on Limiting and Controlling Moderators" (revision of ANSI/ANS-8.22-1997 (R2011))
- ANS-8.23, "Nuclear Criticality Accident Emergency Planning and Response" (revision of ANSI/ANS-8.23-2007 (R2012))

PINS in Approval Process/Resolving Comments (1)

- ANS-8.29, "Nuclear Criticality Safety in Fuel Reprocessing Facilities" (new standard)

Standards in Development – Approved PINS (7)

- ANS-8.3, "Criticality Accident Alarm System" (revision of ANSI/ANS-8.3-1997 (R2012))
- ANS-8.12, "Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors" (revision of ANSI/ANS-8.12-1987 (R2011))
- ANS-8.20, "Nuclear Criticality Safety Training" (revision of ANSI/ANS-8.20-1991 (R2015))
- ANS-8.21, "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors" (revision of ANSI/ANS-8.21-1995 (R2011))
- ANS-8.24, "Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations" (revision of ANSI/ANS-8.24-2007 (R2012))
- ANS-8.26, "Criticality Safety Engineer Training and Qualification Program"(revision of ANSI/ANS-8.26-2007 (R2012))
- ANS-8.28, "Administrative Practices for the Use of Non-Destructive Assay Measurements for Nuclear Criticality Safety" (new standard)

Pending ANSI Approval (1)

- ANS-8.27, "Burnup Credit for LWR Fuel" (revision of ANSI/ANS-8.27-2007)

Standard Recently Approved (2)

- ANSI/ANS-8.10-2015, "Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement" (revision of ANSI/ANS-8.10-1983 (R2005))
- ANSI/ANS-8.20-1991 (R2015), "Nuclear Criticality Safety Training" (reaffirmation of ANSI/ANS-8.20-1991 (R2005))

Responses to Inquiries in Development (0)

The NCSCC has no inquiries in need of response.

Delinquent Standards – 5+ Years Since ANSI Approval (2)

- ANSI/ANS-8.6-1983 (R2010), "Safety in Conducting Subcritical Neutron-Multiplication Measurements in Situ (maintenance requested)
- ANSI/ANS-8.27-2008, "Burnup Credit for LWR Fuel" (revision balloted by ANS-8; waiting for response from objectors)

Membership Changes

There have been no membership changes since the June 2015 report.

ATTACHMENT 24

ESCC Chairman's Report to the ANS Standards Board

Tuesday, November 10, 2015 • Marriott Wardman Park • Washington D.C.

Projects in Consideration for Development/Volunteer Support Needed (11)

- ANS-2.13, "Evaluation of Surface-Water Supplies for Nuclear Power Sites" (reinvigoration of historical standard ANSI/ANS-2.13-1979 (R1989))
- ANS-2.18, "Standards for Evaluating Radionuclide Transport in Surface Water for Nuclear Power Sites," (new standard)
- ANS-2.19, "Guidelines for Establishing Site-Related Parameters for Site Selection and Design of an Independent Spent Fuel Storage Installation (Water Pool Type)" (reinvigoration of historical standard ANSI/ANS-2.19-1981 (R1990))
- ANS-2.22, "Environmental Radiological Monitoring at Nuclear Facilities," (new standard)
- ANS-2.25, "Surveys of Ecology Needed to License Nuclear Facilities" (reinvigoration of historical standard ANSI/ANS-18.5-1982/redesignated ANS-2.25) (Approved PINS but no membership)
- ANS-18.2.1, "Methods for Inferring Environmental Doses" (new standard)
- ANS-18.3.1, "Entrainment: Guide to Steam Electric Power Plant Cooling System Siting, Design and Operation for Controlling Damage to Aquatic Organisms" (new standard)
- ANS-18.3.2, "Cold Shock: Guide to Steam Electric Power Plant Cooling System Siting, Design and Operation for Controlling Damage to Aquatic Organisms" (new standard)
- ANS-18.3.3, "Entrapment/Impingement: Guide to Steam Electric Power Plant Cooling System Siting, Design and Operation for Controlling Damage to Aquatic Organisms at Water Intake Structures" (new standard)
- ANS-18.4, "Aquatic Ecological Surveys Required for Siting, Design, and Operation of Thermal Power Plants" (new standard)
- ANS-18.6, "Discharge of Thermal Effluents into Surface Waters" (new standard)

PINS in Development/Approval (4)

- ANS-2.6, "Guidelines for Estimating Present and Forecasting Future Population Distributions Surrounding Nuclear Facility Sites"
- ANS-2.10, "Criteria for the Handling and Initial Evaluation of Records from Nuclear Power Plant Seismic Instrumentation" (reinvigoration of historical standard ANSI/ANS-2.10-2003))
- ANS-2.32, "Guidance on the Selection and Evaluation of Remediation Methods for Subsurface Contamination" (new standard – project being reinvigorated by interim chair)
- ANSI/ANS-16.1-2003 (R2008), "Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure" (new chair just committed)

Standards in Development – Approved PINS (5)

- ANS-2.2, "Earthquake Instrumentation Criteria for Nuclear Power Plants" (reinvigoration of historical standard ANSI/ANS-2.2-2002)
- ANS-2.8, "Determine External Flood Hazards for Nuclear Facilities" (reinvigoration of historical standard ANSI/ANS-2.8-1992) (subsumed ANS-2.31; issued for preliminary review through 11/6/15)
- ANS-2.9, "Evaluation of Ground Water Supply for Nuclear Facilities" (reinvigoration of historical standard ANSI/ANS-2.9-1980 (R1989))
- ANS-2.16, "Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities" (new standard and new chair just committed)
- ANS-3.8.10, "Criteria for Modeling Real-time Accidental Release Consequences at Nuclear Facilities" (new standard and new chair just committed)

Standard at Ballot/Resolving Comments (1)

- ANS-2.23, "Nuclear Plant Response to an Earthquake" (revision of ANSI/ANS-2.23-2002 (R2009))

Standards Recently Approved (2)

- ANSI/ANS-2.30-2015, "Criteria for Assessing Tectonic Surface Fault Rupture and Deformation at Nuclear Facilities" (new standard)
- ANSI/ANS-3.11-2015, "Determining Meteorological Information at Nuclear Facilities" (revision of ANSI/ANS-3.11-2005 (R2010))

Standards Under Reaffirmation/Revision Review (5)

- ANSI/ANS-2.3-2011
- ANSI/ANS-2.21-2012
- ANSI/ANS-2.26-2004 (R2010), "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design" (revision being considered)
- ANSI/ANS-2.27-2008, "Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments" (revision being considered)
- ANSI/ANS-2.29-2008, "Probabilistic Seismic Hazard Analysis" (revision being considered)

Delinquent Standards (5+ years since ANSI approval) (6)

- ANSI/ANS-2.17-2010, "Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Plants" (no activity)
- ANSI/ANS-2.23-2002 (R2009), "Nuclear Plant Response to an Earthquake" (revision in development)
- ANSI/ANS-2.26-2004 (R2010), "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design" (revision being considered)
- ANSI/ANS-2.27-2008, "Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments" (revision being considered)
- ANSI/ANS-2.29-2008, "Probabilistic Seismic Hazard Analysis" (revision being considered)
- ANSI/ANS-16.1-2003 (R2008), "Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure" (revision being considered)

Responses to Inquiries (0)

The ESCC has not received any inquiries on standards since its last report.

Membership Changes (0)

There have been no ESCC membership changes since its last report.

ATTACHMENT 25

FWDCC Chairman's Report to the ANS Standards Board
November 10, 2015 • Marriot Wardman Park • Washington D.C.

PINS in Development (3) (No PINS currently in approval)

- ANS-55.1, "Solid Radioactive Waste Processing Systems for Light Water Reactor Plants" (revision of ANSI/ANS-55.1-1992 (R2009))
- ANS-55.4, "Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants" (revision of ANSI/ANS-55.4-1992 (R2007))
- ANS-55.6, " Liquid Radioactive Waste Processing System for Light Water Reactor Plants" (revision of ANSI/ANS-55.6-1992 (R2007))

Standards in Development – Approved PINS (2)

- ANS-57.2, "Design Requirements for Light Water Reactor Spent Fuel Facilities at Nuclear Power Plants" (reinvigoration of historical standard ANSI/ANS-57.2-1983)
- ANS-57.3, "Design Requirements for New Fuel Storage Facilities at LWR Plants" (reinvigoration of historical withdrawn standard)
  NOTE: Rich Browder, Duke Energy, has assumed WG lead from Mark Peres to complete the drafts of both standards and submit for CC review by December 2015.

Delinquent Standards (5+ years since ANSI approval) (8)

- ANSI/ANS-40.37-2009, "Mobile Low Level Radioactive Waste Processing Systems"
- ANSI/ANS-55.1-1992 (R2009), "Solid Radioactive Waste Processing Systems for Light Water Reactor Plants" (revision to be initiated—needs members)
- ANSI/ANS-55.4-1992 (R2007), "Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants" (revision to be initiated—needs members)
- ANSI/ANS-55.6-1993 (R2007), "Liquid Radioactive Waste Processing System for Light Water Reactor Plants" (revision to be initiated—needs members)
- ANSI/ANS-57.5-1996 (R2006), "Light Water Reactors Fuel Assembly Mechanical Design and Evaluation" (chair/members needed)
- ANSI/ANS-57.10-1996 (R2006), "Design Criteria for Consolidation of LWR Spent Fuel (chair/members needed)

Standard Recently Approved (1)

- ANSI/ANS-57.1-1992 (R2015), "Design Requirements for Light Water Reactor" (reaffirmation of ANSI/ANS-57.1-1992 (R2005))

Responses to Inquiries in Development (2)

- An inquiry was received 8/10/14 on ANSI/ANS-57.1-1992 (R2005), "Design Requirements for Light Water Reactor." A response is in development.
- An inquiry was received 1/12/15 on ANSI/ANS-55.1-1992 (R2009), "Solid Radioactive Waste Processing System for LWR Reactor Plants," and ANSI/ANS-55.6-1993 (R2007), "Liquid Radioactive Waste Processing System for LWR Plants." A response is in development.

Membership Changes

There have been no membership changes since the June 2015 report.

JCNRM Chairman's Report to the ANS Standards Board
November 10, 2015• Marriot Wardman Park • Washington D.C.

ASME/ANS RA-S

Work on the revision of ASME/ANS RA-S-2008, called a "new edition", has been under way since the release of Addenda B in 2013. This new version is expected to contain many substantive changes based on feedback from recent users of the standard, along with extensive re-formatting and the like. The next version is expected to be complete by late 2016. The next version of the requirements for seismic PRA at power will be issued in advance through a case, perhaps by early 2016, in response to requests by the user community that this aspect of the revised standard be available earlier.

New Standards in Development

There are 5 new PRA methodology standards in various stages of development. NOTE: The JCNRM has decided that each of these new standards will be released initially for Trial Use and Pilot Application – not for approval as an American National Standard by the American National Standards Institute.

ANS-58.22-2014, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications"

- The Writing Group is led by Don Wakefield, and took a very long time to complete: the W.G. began its work in 1999.
- ANS/ASME-58.22-2014 was published on March 25, 2015, for a 36-month trial use period.
- Findings from the trial-use period will be incorporated into a future revision of ASME/ANS RA-S (the combined Level 1 standard).
- Two pilot applications are now under way at operating nuclear power plants, and another may begin soon.

ASME/ANS RA-S-1.2-2014, "Severe Accident Progression and Radiological Release (Level 2) PRA Methodology to Support Nuclear Installation Applications" (previously ANS/ASME-58.24)

- The Writing Group is led by Ed Burns, and this effort has been underway since 2005. Burns took over as chair from Mark Leonard in early 2013. Leonard had led the WG since its inception.
- ASME/ANS RA-S-1.2-2014 was published on January 5, 2015, for a 24-month trial use period.
- Findings from the trial-use period will be incorporated into a revision of the standard; the revised standard will be issued for ballot with the intent of seeking ANSI approval.

ASME/ANS RA-S-1.3-201x, "Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications" (previously ANS/ASME-58.25)

- The Writing Group is led by Keith Woodard, and this effort has been underway since 2005.
- After two earlier ballots and comment resolutions, the WG is very close to completing its work. A working group meeting was held April 14 – 15, 2015, to address additional comments provided by the NRC in August 2014. A "final" version was issued to the JCNRM on August 8, 2015, and the ballot closed on September 28, 2015. The ballot passed (71% approval) but a number of comments and a few objections were received. Comments are being addressed. A recirculation ballot will follow, probably in early calendar 2016
- The JCNRM plans to issue this standard for Trial Use and Pilot Application. The TUPA period will likely be for 24 or 36 months. After that, the findings from the trial-use period will be incorporated into a revision of the standard; the revised standard will be issued for ballot with the intent of seeking ANSI approval.
- A trial application of this standard is under way now, using the draft version from summer 2015. Another is anticipated in mid-2016 using the version that by then is anticipated to have been approved and published.

ASME/ANS RA-S-1.4, "Advanced Non LWR PRA Standard"

- The Working Group is led by Karl Fleming, underway since 2007.
- A final JCNRM ballot was held in spring 2013, and the ballot was successful. This standard was published on December 9, 2013, for trial use and pilot application for a 36-month period.
- Four different pilot applications are now under way.
- Findings from the trial-use period will be incorporated into a revision of the standard; the revised standard will be issued for ballot with the intent of seeking ANSI approval.

ASME/ANS RA-S-1.5, "Advanced Light Water Reactor PRA Standard"

- The Writing Group is led by James Chapman, underway since 2007. The JCNRM calls this the "ALWR PRA Standard."
- A final JCNRM ballot was held in spring 2013, and it was approved by the JCNRM. Additional changes were made to the draft, in part to accommodate applicability to SMRs (small modular reactors) that use light-water coolant. The working group is currently considering additional comments from the NRC related to the NRC's ALWR Interim Staff Guidance document, and possible changes to the draft before issuing the standard for a reballot.
- The working group is developing a markup of the NRC proposal and expects to finalize a draft for JCNRM ballot by the end of 2015. The ALWR appendix will be issued initially for trial use and later be incorporated into a revision of RA-S.

ANS RISC merger with ASME CNRM to form a new "Joint Committee on Nuclear Risk Management"

The merger has two aspects, an "organizational" aspect and a "business" aspect.

The "organizational" aspect, which was completed in early 2012 after over two years of administrative and liaison work, involved developing a "Rules and Operating Procedure" and a new structure for the joint committee. The structure consists of 3 subcommittees and a series of about ten writing groups and working groups, and a half-dozen short-term project teams. The two societies' Boards approved the "Rules and Operating Procedure" in final form in late 2011, and the new structure was put in place then. The new JCNRM has been operating as such since spring 2012, after having operated informally as a single joint entity for over a year prior to that. With this series of steps in place, the former ANS RISC Committee and the former ASME Committee on Nuclear Risk Management have effectively ceased to exist.

The JCNRM "business" aspect is not yet in place. Negotiations have been advancing recently after a long period of slower movement. The outlines of the final business arrangement are now in place, although nothing has been "approved" in final form yet. The tentative arrangement consists of ANS assumption of the administrative work of editing and publishing all new JCNRM standards; and ASME assumption of the work of arranging meetings, managing the finances, managing the ballot process, and a few other administrative tasks.

It is a pleasure to report that there seems to be almost no "friction" between the two societies in terms of how this merger has worked so far or will work in the future. The two co-chairs and the staffs of the two societies are working well together and rather little in the way of a legacy of the two societies' former roles remains as an impediment.

Standards Inquiries and Delinquent Standards

No inquiries have been received recently. The JCNRM does not have any delinquent standards in need of maintenance.

Future Plans

The JCNRM's Executive Committee has been meeting more-or-less bi-weekly by conference call. The principal focus has always been to serve as the "planning committee" and "coordinating committee" to oversee governance of the large and complex set of JCNRM activities, with an eye on planning for up to about two years out. The main JCNRM effort now is to develop the next version of the main PRA Combined Standard, which is planned now for late 2016. This next version, which we will call a "new edition" instead of an "addendum," is

expected to have substantial changes to the format as well as to the content, based largely on feedback received in the past 2-3 years as this standard has been used by the commercial nuclear-power operating fleet and by the NRC. During this period of use, many areas have been identified where inconsistencies exist between different parts of the large PRA standard, mostly due to variable interpretations, and a few other problems have also been discovered during use. A number of what the JCNRM has called "cross cutting issues" have also been identified, each of which is being worked on by one of several *ad hoc* project teams within the larger JCNRM. Some of these issues have policy implications for how the standard is to be used, but mostly these are issues with technical substance.

The other major JCNRM task in the next year is to ballot and issue the new Level 3 PRA and ALWR PRA standards under development that are discussed in the opening section of this report. This is a major effort, involving several dozen volunteers.

A third important task, although it does not require a lot of JCNRM effort now, is following the progress of the several "trial use applications" of our new standards, to assure that the way they approach their work provides as much useful feedback information as feasible to the JCNRM.

In mid-2013, the JCNRM established a separate new subcommittee, the Subcommittee on Risk Applications, with the charter to be the JCNRM interface with ANS and ASME (and other SDOs in the future) so as to provide assistance to other standards-development projects whenever such a project desires to develop a new standard (or modify an existing standard) to provide risk-informed or performance-based requirements. This new JCNRM Subcommittee is the JCNRM interface with the ANS Standards Board's Risk-informed, Performance-based Principles and Policy Committee (RP3C).

In September 2014, the JCNRM dissolved one of its subcommittees, the Subcommittee on Planning, Interface, and Implementation, because the JCNRM leadership concluded that it would be more efficient to disperse this Subcommittee's several responsibilities among the other three JCNRM subcommittees.

There is also some early discussion about whether the JCNRM should start working on standards for non-reactor nuclear facilities, which standards are of great interest to the U.S. Department of Energy.

Financial Support

For several years until it ended in 2013, a grant to the ANS from the U. S. Nuclear Regulatory Commission provided financial support for the work of the standards committee, mainly to cover travel costs of participants who had no other financial support, but also to cover a few other selected expenses. In spring 2014, a new grant application was submitted by the ANS in response to an NRC formal solicitation. This grant was formally awarded on February 4, 2015. This new grant is much more restrictive concerning who is eligible for reimbursement, and requires clearance for use of grant funds prior to each meeting. Also, significantly more detailed financial reporting is required.

LLWRCC Chairman's Report to the ANS Standards Board
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Projects in need of support (chair/members) to be initiated (3)

- ANS-56.1, "Containment Hydrogen Control" (reinvigoration of withdrawn project)
- ANS-58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture" (reinvigoration of historical standard ANSI/ANS-58.2-1988)
- ANS-58.11, "Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors" (reinvigoration of historical standard ANSI/ANS-58.11-1995 (R2002))

PINS in Development (1)

- ANS-59.3, "Nuclear Safety Criteria for Control Air" (reinvigoration of historical standard ANSI/ANS-59.3-1992 (R2002))

Standards in Development – Approved PINS (6)

- ANS-3.8.7, "Properties of Planning, Development Conduct, and Evaluation of Drills and Exercises for Emergency Preparedness at Nuclear Facilities" (revision of historical standard ANSI/ANS-3.8.7-1998) ****Once ANS-3.8.7 is completed, a path forward for completing the remaining emergency preparedness standards will be determined. This includes ANS-3.8.1, ANS-3.8.2, ANS-3.8.3, and ANS-3.8.6.****
- ANS-3.13 "Nuclear Plant Reliability Assurance Program (RAP) Development Guidance for Design, Construction, and Operation" (new standard)
- ANS-18.1, "Radioactive Source Term for Normal Operation of Light Water Reactors" (revision of historical standard ANSI/ANS-18.1-1999)
- ANS-51.10, "Auxiliary Feedwater System for Pressurized Water Reactors" (revision of ANSI/ANS-51.10-1991 (R2008))
- ANS-56.8, "Containment Leakage Testing Requirements" (revision of ANSI/ANS-56.8-2002 (R2011))
- ANS-58.8, "Time Response Design Criteria for Safety-Related Operator Actions" (revision of ANSI/ANS-58.8-1994 (R2008))

Standards at Ballot/Resolving Comments (1)

- ANS-3.5, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" (revision of ANSI/ANS-3.5-2009)

Standards Recently Approved (3)

- ANSI/ANS-58.9-2002 (R2015), "Single Failure Criteria for Light Water Reactor Safety-Related Fluid Systems" (Reaffirmation of ANSI/ANS-58.9-2002 (R2009))
- ANSI/ANS-59.51-1997 (R2015), "Fuel Oil Systems for Safety-Related Emergency Diesel Generators" (reaffirmation of ANSI/ANS-59.51-1997 (R2007))
- ANSI/ANS-59.52-1998 (R2015), "Lubricating Oil Systems for Safety-Related Emergency Diesel Generators" (reaffirmation of ANSI/ANS-59.52-1998 (R2007))

Delinquent Standards (5+ years since ANSI approval) (4)

- ANSI/ANS-3.5-2009, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" (revision @ ballot)
- ANSI/ANS-51.10-1991 (R2008) "Auxiliary Feedwater System for Pressurized Water Reactors" (revision initiated)
- ANSI/ANS-58.3-1992 (R2008), "Physical Protection for Nuclear Safety-Related Systems and Components" (inactive)
- ANSI/ANS-58.8-1994 (R2008), "Time Response Design Criteria for Safety-Related Operator Actions" (revision initiated)

Responses to Inquiries in Development/Approval (1)

- An inquiry was received 10/5/15 on ANSI/ANS-3.4-2013, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants." A response is in development.

Membership Changes

The following membership changes were made since the June 2015 report:

- C.E. "Gene" Carpenter was elected LLWRCC Chair; William Reuland was elected LLWRCC Vice Chair.
- Pranab Guha was approved as the chair of the Simulators, Instrumentation, Control Systems, Software & Testing Subcommittee; Lowell Christensen was approved as an LLWRCC member and as the vice chair of the Simulators, Instrumentation, Control Systems, Software & Testing Subcommittee.
- Ronald Markovich was approved as the new Emergency Planning & Response Subcommittee Chair.
- James "Mike" Bonfiglio was approved as a new LLWRCC member.

NRNFCC Chairman's Report to the ANS Standards Board
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Standards in Development – Approved PINS (2)

- ANS-3.14, "Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities" (new standard)
- ANS-57.11, "Integrated Safety Assessments for Nonreactor Nuclear Facilities" (new standard)

Responses to Inquiries in Development/Delinquent Standards (5+ years since ANSI approval)(0)

The committee has not received any inquiries on standards and does not have any delinquent standards.

Membership Changes

Todd Anselmi was approved as a new NRNFCC member.

RARCC Chairman's Report to the ANS Standards Board
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PINS in Development/Approval (3)

- ANS-15.15, "Criteria for the Reactor Safety Systems of Research Reactors" (revision of historical standard ANSI/ANS-15.15-1978 (R1986))
- ANS-20.xx, "Safety Design Criteria for Molten Salt Reactors" (title TBD – new standard)
- ANS-30.2, "Standard on SSC Classification" (title TBD – new standard)

Standards in Development – Approved PINS (6)

- ANS-15.2, "Quality Control for Plate-type Uranium-Aluminum Fuel Elements" (revision of ANSI/ANS-15.2-1999 (R2009))
- ANS-15.4, "Selection and Training of Personnel for Research Reactors" (revision of ANSI/ANS-15.4-2007)
- ANS-15.11, "Radiation Protection at Research Reactor Facilities" (revision of ANSI/ANS-15.11-2009)
- ANS-20.1, "Nuclear Safety Criteria and Design Process for Fluoride Salt-Cooled High-Temperature Reactor Nuclear Power Plants" (new standard)
- ANS-30.1, "Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs" (new standard)
- ANS-54.1, "Nuclear Safety Criteria and Design Process for Liquid-Sodium-Cooled Reactor Nuclear Power Plants" (revision of historical standard ANSI/ANS-54.1-1989)

Standards Recently Approved

- ANSI/ANS-15.16-2015, "Emergency Planning for Research Reactors" (revision of ANSI/ANS-15.16-2008)

Delinquent Standards (5+ years since ANSI approval) (3)

- ANSI/ANS-15.2-1999 (R2009), "Quality Control for Plate-type Uranium-Aluminum Fuel Elements" (revision initiated)
- ANSI/ANS-15.4-2007, "Selection and Training of Personnel for Research Reactors" (revision at ballot with subcommittee)
- ANSI/ANS-15.11-2009, "Radiation Protection at Research Reactor Facilities" (revision at ballot with subcommittee)

Responses to Inquiries (0)

The RARCC has no open inquiries.

Membership Changes

The RARCC has had the follow recent changes to membership:

- Mark Linn was approved as a new member of the RARCC.
- Thomas Newton was approved as a new member of the RARCC and as chair of the Operations of Research Reactors Subcommittee.

SRACC Chairman's Report to the ANS Standards Board
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PINS in Development (2)

- ANS-6.1.1, "Neutron and Gamma-Ray Fluence-To-Dose Factors" (reinvigoration of historical standard ANSI/ANS-6.1.1-1991)
- ANS-19.4, "A Guide for Acquisition and Documentation of Reference Power Reactor Physics Measurements for Nuclear Analysis Verification" (historical revision of ANSI/ANS-19.4-1976; R1983; R1989; R2000 – proposed new standard)

Standards in Development – Approved PINS (7)

- ANS-6.4.2, "Specification for Radiation Shielding Materials" (revision of ANSI/ANS-6.4.2-2006)
- ANS-6.4.3, "Gamma-Ray Attenuation Coefficients & Buildup Factors for Engineering Materials" (reinvigoration of historical standard ANSI/ANS-6.4.3-1991)
- ANS-19.1, "Nuclear Data Sets for Reactor Design Calculations" (revision of ANSI/ANS-19.1-2002 (R2011))
- ANS-19.5, "Requirements for Reference Reactor Physics Measurements" (historical revision of ANSI/ANS-19.5-1995)
- ANS-19.9, "Delayed Neutron Parameters for Light Water Reactors" (new standard)
- ANS-19.11, "Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors" (revision of ANSI/ANS-19.11-1997 (R2011))
- ANS-19.12, "Nuclear Data for the Production of Radioisotope" (new standard)

Standards at Ballot/Resolving Comments (1)

- ANS-6.3.1-1997 (R201x), "Program for Testing Radiation Shields in Light Water Reactor (LWR)" (reaffirmation of ANSI/ANS-6.3.1-1997 (R2007))

Standard Pending Standards Board Certification/ANSI Approval (1)

- ANS-10.8," Non-Real Time, High-Integrity Software for the Nuclear Industry---User Requirements" (new standard)

Standards Recently Approved (1)

- ANSI/ANS-6.6.1-2015, "Calculation and Measurement of Direct and Scattered Gamma Radiation from LWR Nuclear Power Plants" (revision of ANSI/ANS-6.6.1-1987 (R2007))

Delinquent Standards (5+ years since ANSI approval) (7)

- ANSI/ANS-6.3.1-1997 (R2007), "Program for Testing Radiation Shields in Light Water Reactor (LWR)" (reaffirmation in process)
- ANSI/ANS-6.4-2006, "Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants" (a new working group chair recently committed)
- ANSI/ANS-6.4.2-2006, "Specification for Radiation Shielding Materials" (revision initiated)
- ANSI/ANS-10.2-2000 (R2009), "Portability of Scientific and Engineering Software" (being considered for withdrawal)
- ANSI/ANS-10.4-2008, " Verification and Validation of Non-Safety-Related Scientific and Engineering Computer Programs for the Nuclear Industry" (being considered for revision)
- ANSI/ANS-19.3.4-2002 (R2008) "The Determination of Thermal Energy Deposition Rates in Nuclear Reactors" (chair needed)
- ANSI/ANS-19.10-2009, "Methods for Determining Neutron Fluence in BWR and PWR Pressure Vessel and Reactor Internals" (maintenance needed)

Responses to Inquiries in Development (0)

The committee has not received any recent inquiries on standards.

Membership Changes

The SRACC has had no membership changes since the June 2015 report.

ATTACHMENT 31

Associate Member Survey

We are conducting a survey of the American Nuclear Society Standards Committee associate member program and need your input to help us improve. Please take a few minutes to answer the following questions:

Did you get placed on a committee/working group of interest to you?

Yes X No ____

Were you included in all committee/working group communications including information to participate in teleconferences and meetings?

Yes X No ____

Did you provide comments on any documents circulated to the committee/working group?

Yes X No ____ If no, why not? _____

_____

Are you still active on the committee/working group you were placed on?

Yes X No ____ If no, why not? _____

_____

Was the associate member program as explained/what you thought it would be?

Didn't know how long it would take to create the required documents for the committee

What did you hope to gain from being an associate member?

Some industry knowledge and get to know older members of the nuclear industry

What can we do to improve the associate member experience?

See if the associate members could be more involved in certain aspects

Please share any comments, questions, concerns, or complaints about the associate member program:

No comments, even though I have little experience so far, it was nice to be on an ANS committee and gain some knowledge

Please return the completed survey to pschroeder@ans.org.

Thanks!

Memorandum of Understanding
Nuclear Energy Institute and American Nuclear Society Standards Committee

Background

For many years, the Nuclear Energy Institute (NEI) and the American Nuclear Society (ANS) have each made positive contributions to the welfare and objectives of the civilian nuclear industry in different manners and timeframes. Our efforts have been coordinated to some extent through an NEI liaison to the ANS Standards Committee that has enhanced our collective efforts. The purposes of this Memorandum of Understanding (MOU) is to more clearly define a synergistic working relationship between NEI and ANS that focuses on meeting the short-term and long-term needs of the nuclear power industry while avoiding duplication of effort and unintentional conflict.

NEI Role

NEI's Statement of Purpose states that it is to foster and encourage the continued safe utilization and development of nuclear energy to meet the nation's power, environmental and economic goals and to support the nuclear power industry. NEI provides policy direction on critical issues, including regulation, legislation, congressional awareness/acceptance, waste, transportation and other critical activities, and a unified nuclear power industry approach to address and resolve nuclear regulatory issues and related technical matters to facilitate high levels of reliability and economic efficiency in nuclear power plant operations. Its staff advocates and sometimes represents the nuclear power industry before Congress, executive branch agencies, regulatory bodies and state policy forums; providing accurate and timely information to policy makers, the public and other constituencies to promote acceptance and recognition of nuclear ~~energy's~~ power's role in the nation's supply of safe, secure, dependable and economic electric power. Lastly, it provides assistance to the nuclear power industry with regard to state issues such as environmental considerations and rates; and encouragement to educational institutions to promote education in nuclear energy disciplines.

In its implementation of this purpose, NEI supports regulatory coordination of the commercial nuclear power industry at upper management levels; providing prompt and timely solutions to emerging issues through direct communication with the Nuclear Regulatory Commission (NRC) and industry Chief Nuclear Officers. Through sponsorship of committees populated with utility, reactor suppliers and support organization subject matter experts, it provides a cohesive response to resolve emerging issues within a timeframe that may positively affect regulatory outcomes that enhance safety and minimize economic impact.

ANS Standards Committee Role

The ANS Standards Committee is responsible for the development and maintenance of consensus standards that meet ANSI~~/ISO~~ requirements that address the design, analysis, and operation of components, systems, and facilities related to the application of nuclear science and technology. The scope of the ANS Standards ~~Committee~~ Program includes the development and maintenance of standards on the following subjects and ~~closely~~ similarly related activities: (1) Definitions of terminology used in nuclear science and technology; (2) Siting requirements for nuclear facilities; (3) Nuclear facility design and operations, including safety criteria for facilities, operator selection, and training for power production reactors, research reactors and critical facilities, nuclear fuel production, handling, and storage facilities, and facilities for handling radioactive isotopes, including remote handling of radioactive materials; (3) Remediation and restoration of sites used for nuclear facilities; (4) Emergency preparedness; (5) Nuclear criticality safety; (6) Reactor physics and radiation shielding; (7) Computational analysis programs used in the nuclear field; (8) Probabilistic risk assessment, risk management, and risk criteria; (9) Fission product behavior; and, (10) Radioactive waste management.

Memorandum of Understanding
Nuclear Energy Institute and American Nuclear Society Standards Committee

In its implementation of its purpose, ANS, as a Standards Developing Organization under the American National Standards Institute (ANSI), supports the design and safety requirements of the commercial nuclear industry, Federal agencies such as the Department of Energy, the Nuclear Regulatory Commission, national laboratories and universities. ANS commissions technical writing groups that produce Voluntary Consensus Standards, ~~which~~that comply with the requirements established and audited by ANSI. The 1995 National Technology Transfer and Advancement Act and Office of Management and Budget Circular A-119 recognized the value to the Federal Government and industry provided by these standards. The schedule for the development of ANS standards is subject to the consensus requirements inherent in the standards development process. Due to the schedule requirements of the national consensus process, ANS is not ~~organized~~able to provide prompt solutions to emerging regulatory and safety issues on a short~~er schedules~~schedule, as NEI is capable of doing. Therefore, it is logical to coordinate these two important expert responses to ensure the safety of the industry and the public is protected.

NEI/ ANS Coordination

Both NEI and ANS have been successful in supporting commercial nuclear power industry needs, and have a record of cooperation. Each organization draws on technical resources from similar, but not the same sources with different and complementary skills and knowledge.

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NEI reports and guidance documents assist the civilian nuclear power industry in a prompt coordinated response to emerging regulatory issues and requirements, resulting in significant cost savings to the utilities from potential overregulation. ANS standards provide a long-term foundation for design bases and licensing positions of nuclear facilities and issues. NEI documents and ANS standards sometime overlap since similar technical matters are being addressed by both organizations for the nuclear power industry. Moreover, the required technical expertise to develop these often comes from common sources (e.g., utility staff, universities, other public agencies, manufacturers, vendors).

Both ANS and NEI recognize the opportunity for greater effectiveness and efficiency through greater cooperation in the planning and execution of their programs.

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Agreed Actions

Accordingly, in order to ensure that both ANS and NEI collaborate in a coordinated manner for the success of the nuclear power industry, each organization agrees to cooperate through open communication and mutual assistance, where practical, to facilitate meeting the short and long term purposes, goals and objectives of both organizations.

ANS and NEI will strive to enhance the role of mutual cooperation through the following activities conducted through the NEI representative to the Standards Board;

1. ANS Standards Committee will identify a representative when invited by NEI who will serve on selected NEI task forces or working groups ~~to work~~ on areas of mutual interest to provide additional bilateral coordination and technical support; NEI will likewise provide support to the ANS Standards Committee when available.
2. Schedule meetings and teleconferences as necessary between NEI Project Managers and ANS Standards Board Chair or Vice-Chair when areas of mutual interest are identified to coordinate strategies, schedule needs and resources for addressing emerging and existing industry issues; and,
3. Establish a list of items that will be subjects of the teleconferences and committee memberships discussed above.

ATTACHMENT 32
(Continued)

Patricia Schroeder

From: Steven Stamm <ssn617@comcast.net>
Sent: Friday, June 26, 2015 12:43 PM
To: 'George Flanagan'
Cc: Patricia Schroeder
Subject: FW: ANS/NEI MOU Draft & Letter to Grecheck Regarding Utility Engagement Program
Attachments: ANS Comments on MOU 10-10-13 to JR on 10-24-13.doc; Letter to E. Grecheck from D. Spellman on ANS Utility Engagement Program 12-2-13.pdf

George/ Pat

I reviewed the attached document and offer the following comments:

12/2/2013 Letter to E. Grecheck: The items included in Attachment 1 of this letter under "Specific suggested areas of potential benefits" are still applicable, would benefit utility members and have very little cost impact on ANS. These should be included in a revised Utility Membership package offered at what utilities would consider a reasonable fee.

ANS NEI MOU: The proposed NEI MOU doesn't do very much. It was watered down to try to get NEI agreement which failed. I suggest that we propose a high level set of goals which would be the focus our our initial discussion with NEI after which we can assess how the resulting agreed upon goals would be promulgated. Here are my proposed goals for initial discussion for the ANS /NEI interface program:

1. Identification of NEI publications that NEI would like to see published as ANSI Standards.
2. Ongoing identification of topics that NEI would like to have ANS to publish positions on.
3. Develop approach to assure that discussions on potential new standards that overlap with NEI activities are coordinated.
4. Develop an approach that will allow NEI the option of commenting on applicable draft standard
5. Allow NEI to recommend NEI and Utility members for ANS WGs, SubCs and CCs
6. Should NEI representative on CCs be full members(with voting rights) rather than liaison member
7. Other interface issues identified by NEI

Steve Stamm

617 513 5785

From: Patricia Schroeder [mailto:pschroeder@ans.org]
Sent: Monday, June 22, 2015 5:13 PM
To: George Flanagan (flanagangf@ornl.gov); Steven Stamm (ssn617@comcast.net)
Subject: ANS/NEI MOU Draft & Letter to Grecheck Regarding Utility Engagement Program

George & Steve,

I was requested to provide the two of you the ANS/NEI MOU and the letter to Gene Grecheck on Utility Engagement. Both are attached. Please let me know if there is anything else you need from me.

Regards,

Pat

Patricia Schroeder
Standards Manager
American Nuclear Society
555 N. Kensington Avenue
La Grange Park, IL 60561

Phone: 708/579-8269
Fax: 708/579-8248
Email: pschroeder@ans.org

American Nuclear Society

ATTACHMENT 33

Patricia Schroeder

From: Flanagan, George F. <flanagangf@ornl.gov>
Sent: Monday, October 26, 2015 2:09 PM
To: Michaele BradyRapp (Michaele.BradyRaap@pnnl.gov)
Cc: Patricia Schroeder
Subject: NRC meeting last May

Michaele, Last May you and Eugene met with NRC leadership. Prior to that meeting the Standards Board provided you with some white papers for your use during the meeting. Since sometime was spent preparing these I was asked by the Standards Board in June to request any feedback as to their utility for use in your meeting with NRC and any improvements we could make in providing a more useful product in the future. Any information would be beneficial.

Thanks.
George

Broadcast to YMG issued October 28, 2015

Join the ANS Standards Committee

Are you looking for a way to differentiate yourself from your peers?

Do you want to make a meaningful contribution to the nuclear industry?

Do you want a chance to interface with and develop relationships with some of the most well-known individuals in the nuclear industry?

If the answer to any of these questions is yes, then participation in the development and maintenance of ANS nuclear industry standards as an associate member may be right for you.

ANS sponsors the development of voluntary consensus standards that are used throughout the U.S. and other areas of the world for nuclear related analyses, design, operation, waste disposal, decommissioning, research and testing. We can tailor your participation to your areas of interest and level of availability. Travel will not be required. However, you would be welcome if you decide to attend one or more meetings in person.

Openings for this meaningful opportunity are limited, so secure your spot today. Please contact the ANS Standards Manager, Pat Schroeder, for additional information about the Associate Member Program at 708-579-8269 or pschroeder@ans.org.

American Nuclear Society
Young Members Group

American Nuclear Society

Professional Division (PD) Liaisons

- Objective
  - To establish synergy between ANS members through PD liaisons to Standards Consensus Committees
    - PDs interact and its members benefit by keeping current on standards and standards projects within its discipline
    - Standards Consensus committees benefit by improved access to PD Subject Matter Expert's (SME's)
    - ANS members benefit by improved professional experience and networking in the standards development process
  - Provide feed back to the standards committee on possible new standards and revisions to existing standards
- Expectations
  - Attend Consensus Committee meetings within its discipline and share what the PD is doing in that technical area
  - Share standards and standards projects with the PD executive committee

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American Nuclear Society

Professional Division (PD) Liaison (Cont.)

- **Proposed Interface Improvements**
  - Standards Committee to provide the PDs with Project Initiation Notification System (PINs) form for new standards in their areas of interest for dissemination to its members
    - PDs feedback as applicable, including persons interested in participating or being kept informed of progress
  - Standards Committee to provide a call for volunteers to the applicable PD for distribution to its members
    - PDs provide volunteer name and contact information to applicable standards committee
  - PDs to indicate topics for which it sees a need for new or revised standards
  - Included specific agenda items on standards committee/PD interface on respective meeting agenda's
  - Set up webinar on an overview of standards to be made available to PD executive committee members

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ATTACHMENT 36

Standards Board Completed Action Items for Concurrence

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2015-01	Pat Schroeder to prepare a summary of responses to the priority survey and provide to the SB and the ANS Executive Committee. Due Date: August 31, 2015	Pat Schroeder	**Completed** See Attachment 2 of the SB Meeting Materials Packet
6/2015-02	Pat Schroeder to issue a ballot for approval of the BRC changes to Rule 7.1.4(n) on the SB membership. Due Date: July 1, 2015	Pat Schroeder	**Completed** Ballot closed 7/27/15 (Link to ballot)
6/2015-03	Action Item 6/2015-03: George Flanagan (Policy Task Group) to develop the ANS Standards Committee Strategic Plan and provide to the ANS Executive Committee. Due Date: October 1, 2015	Policy Task Group	**Completed** Draft strategic plan issued for ballot but not approved. See Attachment 4.
6/2015-04	Pat Schroeder to prepare a redline comparison of ANSI/ANS-5.1-2005 to ANSI/ANS-5.1-2014. Due Date: July 1, 2015	Pat Schroeder	**Completed** Redlines prepared & sent 7/13/15. Redlines evaluated and felt of no benefit. ANS is looking at partnering with company that can provide tech editing of redlines for sale.
6/2015-06	Pat Schroeder to provide instruction to consensus committee chairs emphasizing the importance of identifying related standards and other industry efforts on the PINS forms. Due Date: July 31, 2015	Pat Schroeder	**Completed** Guidance posted to SB Workspace on 8/26/15. (Link to guidance)
6/2015-07	Pat Schroeder to confirm with Donald Eggett if the recent merger of his company changes his balance of interest classification from "consultant" to "architect-engineer." Due Date: June 30, 2015	Pat chroeder	**Completed** Classification changed to "architect-engineer.
6/2015-13	Pat Schroeder to request presentations of the special session on new reactor concepts and licensing and provide to SB members. Due Date: June 30, 2015	Pat Schroeder	**Completed** Schroeder was provided files by G. Carpenter; forwarded via email on 6/23/15.

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2015-14	Consensus committee chairs to complete the Standards Training Package Application Matrix and provide back to Steven Stamm and Pat Schroeder. Due Date: September 1, 2015	Consensus Committee Chairs	**Completed** Request issued 6/16/15; reminders issued 8/3/18 & 8/18/15. Additional request sent 9/16/15 stating that assignments w/b made based on guidance if no response by 10/15/15. ANS staff to prepare spreadsheet of assignments when program initiated.
6/2015-15	Pat Schroeder to establish a schedule of Workspace live demos with one a month. Due Date: July 15, 2015	Pat Schroeder	**Completed** A series of Workspace live demos were created with the first on 8/12/15 through 9/16/15. A second series of webinars were announced on 9/14/15 for 9/30/15, 10/14/15, and 10/28/15. Hands-on training is offered at the Expo during the ANS winter meeting. Additional trainings to be scheduled in the New Year. A schedule for additional trainings in 2016 was provided as Attachment 15 in the SB Meeting Materials Packet.
6/2015-17	William Turkowski to check with the Westinghouse licensing department for their input on whether there is value in a standard for new designs that would provide an ITAAC writing template or where in the ITAAC process would benefit from standardization. Additionally, input to be sought from NEI. Due Date: September 1, 2015	William Turkowski	**Completed** Feedback emailed to SB members on 7/23/15. (See Attachment 10 of the SB Meeting Materials Packet.)

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2015-19	Pat Schroeder and Steven Stamm to create a form to solicit feedback from associate members. Due Date: September 1, 2015	Pat Schroeder and Steven Stamm	**Completed** 1 of the 11 associate members responded (see attached survey) A 2nd associate member responded that his WG was not active and was reassigned. (See Attachment 30 for a copy of a completed form.)
6/2015-22	Carl Mazzola to provide Donald Eggett contact information for Ben Cross as a possible candidate to lead ANS-57.9, "Design Criteria for an Independent Spent Fuel Storage Installation (Dry Type)." Due Date: June 30, 2015	Carl Mazzola	**Completed** Contact info provided.
6/2015-25	William Turkowski to check with Westinghouse to see if they might be able to appoint an individual to replace George Flanagan as ISO/TC 85/SC 6 Chair. Due Date: September 1, 2015	William Turkowski	**CANCELLED** ORNL appointed replacement.
6/2015-27	Pat Schroeder to send Steven Stamm and George Flanagan a copy of the letter sent to Gene Grecheck with standards-related offerings for utilities to review and updated if necessary before providing back to Gene Grecheck. Due Date: June 30, 2015	Pat Schroeder	**Completed** Schroeder emailed letter to Stamm &/Flanagan on 6/22/15.
6/2015-28	Steven Stamm and George Flanagan to review the letter sent to Gene Grecheck and review the standards-related offerings for utilities and update if necessary before providing back to Gene Grecheck. Due Date: July 20, 2015	Steven Stamm and George Flanagan	**Completed** Letter reviewed & resent to G. Grecheck on 8/24/15.
6/2015-29	Pat Schroeder to forward members a link to the NESCC Database of Standards Referenced in Regulatory Documents. Due Date: July 1, 2015	Pat Schroeder	**Completed** Link emailed 7/7/15 NRC has developed a new database as noted under 4C of the SB agenda. (See Link to new NRC database here)
6/2015-31	Pat Schroeder to distribute the action items in draft format as soon as possible. Due Date: June 20, 2015	Pat Schroeder	**Completed** Preliminary action item list posted 6/15/15 here.

Action Item	Description	Responsibility	Status/Comments /Reassignments
11/2014-04	Consensus committee chairs to issue letters of recognition to subcommittee chairs and their managers as appropriate. Due Date: As needed	Consensus committee chairs	**On-going**
11/2014-07	Pat Schroeder to send a broadcast to student section members on getting involved in standards every other year – next time to be July 2016. Due Date: July 31, 2016	Pat Schroeder	**On-going** Next broadcast 7/31/2016
11/2014-18	Consensus committee chairs to work with subcommittee chairs to prepare a short article about any standard in need of subject matter experts to be maintained or initiated. The article should include details of why the standard needs to be maintained (revision/reaffirmation) or initiated and include its importance and benefit to the industry, expertise needed, etc. Articles to be provided to Pat Schroeder. Due Date: as needed	Consensus committee chairs	**On-going**
11/2014-19	Pat Schroeder to work with the ANS Publication Information Department, Nuclear News staff, and ANS News staff to disseminate articles on ANS standards needing volunteer support from subcommittee chairs in appropriate ANS media/publications. Due Date: as needed	Pat Schroeder	**On-going**
6/2014-08	Steven Stamm (with Gene Carpenter's support) to review SB comments on Donald Eggett's DID white paper and revise accordingly. DUE DATE: November 1, 2015	Steven Stamm	**Superseded** By action item 6/2015-16.
6/2014-15	Steven Stamm to prepare guidance on what goes into a standard and what goes into an appendix. Guidance may consider the 6 points discussed at the 6/17/14 SB meeting. Due Date: September 1, 2015	Steven Stamm	**Completed** Guidance completed at posted to the ANS Web page here.
6/2014-22	Internal Communications TG to prepare 5 training presentations and provide for member comments. Presentations include 1) overview of nuclear related standards, plus additional slides that address international aspects, and 2) ANS standards organization and staffing, 3) the standards development process, 4) Standards Committee policies and procedures, and 5) CC policies and procedures DUE DATE: November 1, 2015	Internal Communications TG	**Completed** All completed and posted to the SC Workspace here.

Action Item	Description	Responsibility	Status/Comments /Reassignments
6/2014-24	Internal Communications TG to review the old NFSC division liaisons list and reinstitute the ANS professional division representative program. (Old NFSC professional division liaison list to be provided to ICTG by Pat Schroeder.) DUE DATE: November 1, 2015	International Communications TG	**OPEN**
11/2012-04	Donald Spellman to begin development of one or more grants for ANS support. Projects to be considered for a grant proposal include ANS-2.8 (Flood Hazards), ANS-3.13 (Reliability Assurance Program), ANS-57.11 (Fuel Cycle Facilities), and advanced reactors.	Donald Spellman	**On Hold** (grant proposals not currently being accepted)

ANS Standards Board Task Groups
(Revision 16, October 2015)**

Policy Task Group

Scope: Function as an advisory group to the chair of the Standards Board (SB) on administrative or procedural issues referred to it from the SB. Interface with the ANS Board of Directors and Standing Committees on policy issues that affect the ANS strategic plan. Review external requests from other SDOs, government organizations, and the public for relevance to the activities of the standards committee and make recommendations on these requests to the SB chair. This does not include clarifications and inquiries on specific standards that are handled under the Standards Committee rules and procedures. Resolve questions referred to the task group from the SB relative to questions or clarifications of Standards Committee policies, rules, and procedures. Membership includes the current and past chairs of the ANS SB, the current SB vice chair, and the standards administrator.

George Flanagan*
Don Spellman
Prasad Kadambi
Chuck Moseley
Steve Stamm
Patricia Schroeder

Priority Task Group

Scope: Re-sort ANS standards data to show a priority list of ANS standards that need the most immediate attention including current, in progress, withdrawn/historical standards. Provide a short commentary on why immediate attention is needed. Communicate that list to ANS SB, consensus committees, and to the NESCC as appropriate.

Don Spellman* (ORNL-retired)
Jim August (Southern Nuclear Co.)
Jim Riley (NEI)

External Communications Task Group

Scope: Improve the links between ANS and users (utilities, designers, architect engineers, universities, national labs, and fuel fabricators), national regulators, other U.S. SDOs, and international SDOs. One member should be actively involved with the NESCC.

OPEN (Chair)*
Ed Wallace (SB)
Stanley Levinson (JCNRM/SCoRA)

Internal Communications Task Group

Scope: Establish closer relationships with ANS governance and technical divisions. Attempt to get more direct representation from technical divisions on standards committees. Revise a training module prepared by Steve Stamm into several modules for different audiences and set up regular presentations at the ANS biannual meetings. Develop an active/inactive Standards Committee members grouping system and methods to encourage non-involved volunteers to become active working group members.

Bill Turkowski (SB)*
Jeff Brault (AGS)

Sales Task Group

Scope: Double or triple our standards sales in the next 2 years

David Sachs (SB) *
Steve Stamm (SB)

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* Interim chair (may be changed at the discretion of the task group)
** No CC chairs on the task groups other than by personal preference

Links Between the ANS Standards Committee and Other SDOs and Other Related Organizations

Name of SDO/and Other Related Organizations	Standards Committee Liaison [ECTG POC]	Link Adequate Y or N?	Next Actions
ACI/AISC/ASCE		N	Need assignment (previously served by John Stevenson)
AGS	Jeffery Brault (NRNF) [H]	Y	
AIChE	William Bell (LLWR) [T]	?	Was AIChE rep on N17 only. No longer serves as AIChe Rep in new CC. Confirm liaison status.
ANSI/ ISO TC 85 SC 6 / NESCC / NRMCC	Prasad Kadambi (SB) [E]	Y	
ASME NQA	Chuck Moseley (LLWR) [E]	Y	
ASTM-C26		N	DJS action
EPRI	Andrew Sowder (SB)	Y	Needs committee assignment
IEEE/NPEC	Donald Spellman (SB) [E]	Y	
INMM	Ronald Knief (NCS) [H]	Y	
INPO	[T]	N	Need assignment
HPS	Richard Brey (SRA) [H]	N	Needs confirmation
JCNRM/SCoRA	Stanley Levinson (SB) [H]	Y	
NCRP	Michael Corradini (SRA) [T]	N	Request a more available member
NEI	James Riley (SB & LLWR) [T]	Y	
NFPA	Bernie Till [H]	Y	On NFPA Tech Com for Fire Protection for Nuclear Facilities
WENRA	Robert Budnitz (SB) [E]	Y	

Acronyms
ACI - American Concrete Institute
AGS - American Glovebox Association
AIChE - American Institute of Chemical Engineers
AISC - American Institute of Steel Construction
ANSI - American National Standards Institute
ASCE - American Society of Civil Engineers
ASTM- American Society for Testing and Materials
C26 - Nuclear Fuel Cycle
EPRI - Electric Power Research Institute
HPS-Health Physics Society
IEEE - Institute of Electrical and Electronics Engineers
INMM-Institute of Nuclear Materials Management
INPO - Institute of Nuclear Plant Operations
ISO - International Organization for Standardization
JCNRM/SCoRA - Joint Committee on Nuclear Risk Management/SubCommittee on Risk Application
NCRP-National Council on Radiation Protection
NEI - Nuclear Energy Institute
NFPA - National Fire Protection Association
NESCC - Nuclear Energy Standards Coordination Collaborative
NRMCC - Nuclear Risk Management Coordinating Committee