American Nuclear Society

# MINUTES

# Standards Board (SB)

**October 31, 2017**
**Marriott Wardman Park, Washington, D.C.**

**Members Present:**
Steven Arndt (Chair), U.S. Nuclear Regulatory Commission
Donald Eggett (Vice Chair), Individual
John Fabian (Secretary Pro Temp), American Nuclear Society
Kathy Murdoch (Secretary Pro Temp), American Nuclear Society
†Patricia Schroeder (Secretary), American Nuclear Society
Amir Afzali, Southern Company
Russell Bell (Liaison), Nuclear Energy Institute
Robert Budnitz, Lawrence Berkeley National Laboratory
Gene Carpenter, U.S. Department of Energy
George Flanagan, Oak Ridge National Laboratory
David Hillyer, Energy Solutions
N. Prasad Kadambi, Individual
†Mark Linn, Oak Ridge National Laboratory
Carl Mazzola, Project Enhancement Corporation
Shivani Mehta (Observer), U.S. Nuclear Regulatory Commission
†Charles (Chuck) Moseley, Jr., Individual
†John Nakoski, U.S. Nuclear Regulatory Commission
James O'Brien, U.S. Department of Energy
William Reuland (Observer), Individual
Andrew Smetana, Savannah River National Laboratory
†Andrew Sowder, Electric Power Research Institute
†Steven Stamm, Individual
†William Turkowski, Westinghouse Electric Company, LLC
Larry Wetzel, BWXT, Inc.

*†Participated by teleconference*

**Guests:**
Kimberly Burns, Pacific Northwest National Laboratory
Robert Coward, MPR Associates, Inc.
John Kelly, U.S. Department of Energy
Andrew Klein, Oregon State University
Edward (Ted) Quinn, Technology Resources

**Members Absent:**
Edward Wallace, Individual

**1. Welcome and Introductions**

Standards Board (SB) Vice Chair Donald Eggett called the meeting to order. He wished all a Happy Halloween. Introductions were made. Eggett recognized Michaele Brady Raap's

resignation from all ANS activities including the chair of the SB so that she can concentrate on her health. Steven Arndt has been appointed as her successor.

**2. Approval of Agenda**

The agenda was approved as presented with the understanding that Ms. Roberta Telles, Executive Director of the International Federation of Inspection Agencies (IFIA), would not be able to attend the meeting and would not be presenting on conformity assessment under other business.

**3. SB Chair/Vice Chair Report**

- Report from ANS President's Special Session
  Both Donald Eggett and Steven Arndt attended the ANS President's Special Session on Sunday. The session is the platform for the president to update committee and division chairs on ANS activities and initiatives. Arndt stated that the message of the meeting was that all the committees and divisions are doing well, but we all need to do better. He added that last year the ANS Executive Committee produced a report called the "State of the Society." The report found that standards were deemed important but not necessarily addressing the most important and critical areas. The Society is facing enormous challenges due to the state of the industry. We need to look at prioritizing all Society activities and ensure that they are being done efficiently. The possibility of expediting the release of a standard through the trial use and pilot application process was mentioned. It is expected that some committees and possibly divisions will be eliminated or combined to make better use of limited volunteer and staff resources.

  In his introduction to the SB, Arndt explained that he has been more involved in international standards than ANS standards recently. In the last four days since being appointed chair of the SB, he has spent much time bringing himself up to date on ANS standards work. Arndt believes that for the most part, standards are in good shape but improvements can be made. The ANS Executive Committee will develop another "State of the Society" report which will be issued next spring. Standards will need to respond with how we will address the identified needs. Arndt sees the ANS Vice President/President Elect John Kelly as being very supportive to standards. Eggett added that ANS President Robert Coward's presentation at the special session included several slides on how we can be more supportive to the industry. Coward is expected to stop by the SB meeting and elaborate.

- Standards Committee Assessment Form
  The Standards Committee Assessment Form was provided to the ANS Planning Committee on August 21, 2017. A copy was provided as a reference in the meeting materials (see Attachment 1). Steven Stamm explained that the assessment form will be updated and submitted to the Planning Committee before each ANS national meeting based on progress made on the Standards Committee Strategic Plan.

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| ACTION ITEM 10/2017-01: Pat Schroeder to add a date to future updates of the Standards Committee Assessment Form.<br>DUE DATE: May 1, 2018 |

- Report to the Board of Directors (*Cancelled)*

Due to the recent change in SB leadership, the report to the Board of Directors was cancelled.

- Standards Committee Strategic Plan Report
(Progress on goals & objectives--SMART Matrix)
Steven Stamm reminded members that the SB received comments from the ANS Executive Committee (ExC). The SB reviewed the comments at the June 2017 meeting and agreed on how to address and incorporate their comments into a revision of the Strategic Plan. The Strategic Plan and SMART Matrix was updated by Stamm as agreed (see Attachment 2). Some debate was held on whether it was appropriate to set a numerical goal for producing standards with risk-informed and/or performance-based (RIPB) methods over a five-year period in response to ExC's comment #7 (ExC comments provided as Attachment 3). The comment was reviewed and was found to deal more with the development time than the number of standards developed. Andrew Klein, as a member of the ExC, thought that it would be acceptable not to quantify the number of standards that will be developed; the importance is expediting the development. Stamm asked Robert Budnitz and Andrew Sowder to help craft appropriate language to explain the SB's position for use in a letter to the ExC. Stamm encouraged other members to send suggestions as well.

ACTION ITEM 10/2017-02: Robert Budnitz and Andrew Sowder to send Steven Stamm their sentiments on why it is not appropriate to quantify the number of RIPB standards to be developed for use in a letter to the ExC.
DUE DATE: November 15, 2017

ACTION ITEM 10/2017-03: Steven Arndt to send a letter to the ExC to explain SB member sentiments on why it is not appropriate to set a numerical metric for the development of RIBP standards in the next five years.
DUE DATE: November 30, 2017

Stamm continued the review of the changes made to address ExC comment in the Strategic Plan. All other changes were found acceptable. Stamm will revise the Strategic Plan and SMART Matrix consistent with the discussion. Once revised, the Strategic Plan will be issued to the SB for approval.

ACTION ITEM 10/2017-04: Steven Stamm to update the Standards Committee Strategic Plan and accompanying SMART Matrix per discussions and to remove a numerical metric for development of RIPB standards.
DUE DATE: December 15, 2017

**4. Secretary/Staff Report**

Pat Schroeder prepared a written report and sales report which was included in the meeting materials and provided to members in advance. The reports were summarized. See Attachments 4 & 5 for the full reports.

**5. ANS President (Leadership) Address**

ANS President Robert Coward addressed the SB and shared a few comments. Coward is very appreciative of standards committee members for all they do. The work is important. The comment he heard through an MPR employee involved in American Society of Mechanical

Engineers (ASME) standards activities is that they (ASME) don't know why ANS (standards) can't get anything done particularly on advanced reactors. Robert Budnitz has heard this comment but doesn't believe it is widespread. Coward continued stating that there is great future opportunity for nuclear in the industry. We all need to get there faster, understand the customer, set priorities, etc. We need to decide what we are really good at and concentrate on that. Steven Arndt stated that he'll take the message to heart and work with the SB and consensus committees to support Coward's goals.

Andrew Sowder stated that there is great attention being placed on how to improve the regulatory process. He believes that there needs to be greater understanding that standards are a part of the path forward to advance this effort.

Coward continued stating that more than ever, it is imperative to change things at ANS or we will no longer be relevant. Donald Eggett suggested that utilizing the recently established liaison program with ANS Professional Division to make better use of resources will help. The use of trial use standards can be considered as a way to expedite the release of a standard.

Budnitz suggested forming a small group that would evaluate what conditions have led to active industry involvement in JCNRM standards that do not apply to other ANS standards committees. Coward agreed that it was important to have industry participation so that standards reflect their needs.

ACTION ITEM 10/2017-05: Robert Budnitz to check with the JCNRM Executive Committee on a way to poll JCNRM members for input on conditions that have led to active industry involved in JCNRM standards that do not apply to other ANS standards.
DUE DATES: November 30, 2017

ANS President Elect John Kelly addressed the SB. He explained that Coward, as ANS president, started with a top down philosophy that he will follow. Kelly asked the SB to think from a clean slate. He recognizes the need for regulatory framework for advanced reactors. Kelly recalled that the U.S. Department of Energy (DOE) had in the past provided funding for volunteers to participate in standards activities and will be looking to see if it could be an option in the future. ANS needs to take a leadership role in organizing standards developers. George Flanagan informed Kelly of an ANS proposal to organize a workshop for the industry to develop a strategic plan for developing advanced reactor standards.

## 6. Current Issues

- U.S. Nuclear Regulatory Commission (NRC) Standards Forum Report & Actions Needed
  Shivani Mehta explained the purpose of the NRC Standards Forum as an opportunity for standards developers and industry to come together, brain storm ideas, and share best practices including those on expediting standards. Three presentations were made on behalf of ANS at the recent NRC Standards Forum held September 26, 2017. Prasad Kadambi made a presentation on ANS efforts to risk-inform standards under the Risk-informed, Performance-based Principles and Policy Committee (RP3C) (see Attachment 6). George Flanagan reported on the presentations he made at the NRC Standards Forum. His first presentation provided progress on the five topical areas of interest to ANS identified at the 2016 Standards Forum (See Attachment 7). The second presentation (Attachment 8) provided an update on the status of ANS advanced reactor standards in development and ended with a proposal for ANS to take the lead to host a workshop to gather industry and standards

developer to create a strategic vision for development of advanced reactor standards—called the "Coalition of the Willing." The proposal was well received by the NRC; DOE, including DOE Gateway for Accelerated Innovation in Nuclear (GAIN); the industry licensing framework modernization group; ASME; American Society of Testing Materials; Institute of Electrical and Electronics Engineers; Nuclear Energy Institute (NEI), including NEI's molten salt reactor and fast reactor working groups. GAIN is factoring the workshop into their planning activities to provide their support. The NRC offered to work with ANS to provide space. Tentatively, the plan is to hold the workshop in the first quarter of 2018 in the Washington, D.C., area. The following motion was made:

> **MOTION:** To endorse the proposal for ANS to take the lead in organizing a workshop for industry to create a strategic vision for development of advanced reactor standards.

Members approved the motion unanimously.

Robert Budnitz suggested that representatives from the American Society of Civil Engineers (ASCE) should be informed of the workshop and offered to provide contact information for these individuals to Flanagan.

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| ACTION ITEM 10/2017-06: Robert Budnitz to provide George Flanagan contact information for ASCE representatives to be invited to the industry workshop to create a strategic vision for development of advanced reactor standards.<br>DUE DATE: November 15, 2017 |

Flanagan suggested that each consensus committee be represented and suggested that each consensus committee chair solicit a representative.

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| ACTION ITEM 10/2017-07: Consensus committee chairs to participate or select a representative to support the industry workshop to create a strategic vision for development of advanced reactor standards. Consensus committee chairs should provide the name of their representative to George Flanagan and Pat Schroeder.<br>DUE DATE: December 31, 2017 |

Prasad Kadambi offered his assistance on behalf of RP3C. Gene Carpenter, John Nakoski, and James O'Brien agreed to assist Flanagan with the preparations for the workshop. Amir Afzali was asked to help as well.

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| ACTION ITEM 10/2017-08: Amir Afzali, Gene Carpenter, Prasad Kadambi, John Nakoski, James O'Brien, and Pat Schroeder to assist George Flanagan in working with NRC and DOE to organize the workshop to create a strategic vision for development of advanced reactor standards.<br>DUE DATE: December 31, 2017 |

- Oak Ridge National Laboratory (ORNL) Gap Analysis
  Flanagan provided members an update on the ORNL Gap Analysis Report on sodium fast reactor technology prepared on behalf of DOE. The gap analysis report was completed and recently circulated to members. The need for several standards was identified. Flanagan thought that ANS would be responsible for development of several of the identified standards. Kadambi commented that the work of RP3C to identify standards that would benefit from RIPB methodologies is correlated to the standards needs identified in the report. Kadambi felt that there would be great benefit for the NRC to endorse these standards.

Members expressed concern that trying to determine best practices for new standards could be a challenge. They would not want delays in licensing due to lack of standards. Members agreed that developing performance-based standards would provide flexibility for new advanced reactor technologies.

- Advanced Reactor Proposal for Development of a Roadmap/Priority List
  NOTE: This agenda item added per Action Item 11/2016-04 to discuss needs identified in the ORNL Gap Analysis Report. This item will be addressed by the advanced reactors strategic planning workshop approved by motion with actions assigned (See Action Item 10/2017-08).

**7. Professional Division (PD)/Standards Committee (SC) Liaisons Program**

- PD/SC Liaison Program Status Update
  William Turkowski reported that he presented a plan on how the PD/SC Liaisons Program works (plan provided in presentation available as Attachment 9). A liaison list has been developed and is being maintained (Attachment 10). A letter was issued to PD Chair Hans Gougar implementing the plan. PD chairs and liaisons were on copy. While the plan had been issued, it appears that there was a communication breakdown. Liaisons were unclear of their responsibilities. Additionally, members stated that some requests for personnel changes had not been made. Steven Arndt suggested that he talk directly to PD Committee Chair Hans Gouger and request that Gouger provide PD liaison changes to William Turkowski and Pat Schroeder.

ACTION ITEM 10/2017-09: Robert Budnitz, Prasad Kadambi, and Larry Wetzel to send William Turkowski and Pat Schroeder updates to the PD Liaison List.
DUE DATE: December 1, 2017

ACTION ITEM 10/2017-10: Steven Arndt to talk with PD Committee Chair Hans Gouger to insure appointments of PD liaisons are provided to William Turkowski and Pat Schroeder to update the list.
DUE DATE: December 31, 2017

ACTION ITEM 10/2017-11: William Turkowski and Pat Schroeder to update the PD/SC Liaisons List and distribute to consensus committee chairs.
DUE DATE: January 15, 2018

ACTION ITEM 10/2017-12: Consensus committee chairs to follow up with new liaison when updated list available.
DUE DATE: February 15, 2018

- CC/PD Interface Activity
  George Flanagan reported that the Fuel Energy Division liaison was in attendance at yesterday's Research and Advanced Reactors Consensus Committee (RARCC) meeting. No other reports were provided.

**8. Student Section/Associate Membership Report**
The list of associate members was reviewed (See Attachment 11). Consensus committee chairs were asked for their feedback on associate member participation. Larry Wetzel reported that the

Nuclear Criticality Safety Consensus Committee (NCSCC) has placed all but one associate member with interest in ANS-8 standards and that they are working to identify an appropriate working group for the last. Other consensus committee chairs commented that they are aware of several associate members involved in working group activities and have not received any negative feedback about the program.

The committee discussed the possibility of a member making a presentation at the student conference next April at the University of Florida in Gainesville, Florida. The key is to find a member local to the conference. Similar presentations were suggested at other topical meetings and conferences such as the Pacific Basin Nuclear Conference. Future opportunities should be identified in advance. A suggestion was made for each consensus committee chair to identify topical meetings within their scope and then identify a representative from the consensus committee to make a presentation.

The following action items were assigned related to the preceding discussion:

ACTION ITEM 10/2017-13: Donald Eggett to contact the ANS Student Conference chair for the upcoming Student Conference next April at the University of Florida-Gainsville to explore their interest and opportunity for a standards presentation. (see http://www.ansstudentconference2018.com/contact.html)
DUE DATE: December 1, 2017

ACTION ITEM 10/2017-14: Steven Arndt to work with consensus committee chairs to establish an annual process to identify opportunities and representatives to make presentations at topical meetings, conferences, and local sections to encourage standards participation.
DUE DATE: December 31, 2017

ACTION ITEM 10/2017-15: George Flanagan to provide members his standards informational presentation for use as a template.
DUE DATE: December 1, 2017

**9. Review of Open Action Item Report**

Action items assigned at previous meetings were reviewed. A report of action items discussed and their status can be found in the action item report following these minutes. A few new action items were assigned during the discussion.

ACTION ITEM 10/2017-16: Members to review the SMART Matrix and provide the status of open actions to Steven Stamm.
DUE DATE: December 1, 2017

ACTION ITEM 10/2017-17: Pat Schroeder to separate the open and completed action items on reports for review at subsequent meetings.
ACTION ITEM: June 1, 2018

ACTION ITEM 10/2017-18: Pat Schroeder to send Steven Arndt a copy of the TG Scope and Member list so that he can update as directed by Action Item 6/2017-04.
DUE DATE: November 15, 2017

The following motion was made:

**MOTION:** to close all completed action items.

**10. RP3C Report**

RP3C Chair Prasad Kadambi reported on the RP3C meeting held the previous day. He referred members to his summary presentation (Attachment 12). Kadambi stated that he would be updating members on the RP3C Operating Plan, Categorization of ANS Standards and Projects, Procedural Guidance Development, as well as, pilots and ongoing projects, and open action items.

The draft operating plan was provided to members just before the meeting (Attachment 13) and is available for information and comment. Names were assigned and target dates set as follows:

- Categorization of standards and projects
  First draft done; next draft contingent on inputs from consensus committees.

- Develop RIPB guidance for consensus committees
  Partial first draft expected by end of 2017.

- Pilot implementation of RIPB principles
  Status of progress will be reported in June 2018.

- Indoctrination of working groups in RIPB
  Development of material will be pursued with available guidance.

Kadambi informed members that a change was made to the standards to be used for the pilots. RP3C leadership felt that the pilots need to use standards in development. For this reason, a decision was made to use proposed new standard ANS-30.2, “Categorization and Classification of Structures, Systems, and Components for New Nuclear Power Plants,” instead of current standard ANSI/ANS-58.14-2011 (R2017), “Safety and Pressure Integrity Classification Criteria for Light Water Reactors.” Proposed new standard ANS-3.14, “Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities,” remains the second standard being used as a pilot.

Kadambi directed members to the ANS Standards Categorization spreadsheet—a list of standards recommended to incorporate RIPB methods (See Attachment 14). All standards and projects were evaluated by a subgroup of RP3C members. The subgroup was in agreement that at least 23 standards would benefit from the use of RIPB methods. Kadambi asked that consensus committee chairs review the short list with consensus committee members and make a technical determination of how to utilize the recommendations. Robert Budnitz reminded members that the Joint Committee on Nuclear Risk Management’s (JCNRM) SubCommittee on Risk Application (SCoRA) is available as a resource to help with incorporating probabilistic risk assessment.

James O’Brien provided some insights into the development of the procedural guidance for using RIPB methods. The guidance document will incorporate inputs from a variety of sources including the Licensing Modernization Project (LMP), case study of ANSI/NFPA-805-2015, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants,” as well as published standards such as ANSI/ANS-53.1-2011 (R2016), “Nuclear Safety

Design Process for Modular Helium-Cooled Reactor Plants," ANSI/ANS-2.26-2004 (R2017), "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design," and SEI/ASCE 43-05, "Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities." A copy of the draft guidance document is available as Attachment 15.

Piloting of proposed standard ANS-30.2 depends on ongoing interactions between the LMPt, the Nuclear Energy Institute (NEI), and the U.S. Nuclear Regulatory Commission (NRC). Piloting of proposed new standard ANS-3.14 will be pursued as the working group progresses with their work. Other ongoing projects will provide inputs further to SB directed interactions with RP3C. RP3C disposition of action items will be finalized based on outcome of SB discussions.

Steven Stamm recognized RP3C for accomplishing much work since the last meeting. He asked that the consensus committee chairs to report back to the SB on their review of RP3C's categorization spreadsheet and to specifically inform the SB if the consensus committee does not agree with any recommendations.

ACTION ITEM 10/2017-19: Consensus committee chairs to review the RP3C categorization spreadsheet of standards and projects recommended to incorporate RIPB methods and develop a path forward with priorities. Consensus committee plans (including variances from the recommendations) to be reported back to the SB and RP3C. (The list includes projects under ESCC, FWDCC, LLWRCC, NRNFCC, and RARCC.)
DUE DATE: January 31, 2018

ACTION ITEM 10/2017-20: Consensus committee chairs to review the draft RP3C guidance document and submit any comments to Prasad Kadambi and Pat Schroeder.
DUE DATE: December 1, 2017

Stamm asked the RP3C chair and vice chair to consider teleconferences between meetings to help complete all of these actions.

## 11. Consensus Committee Chair Reports

Each report shall address the following areas:

- CC performance improvement activities
- Plan for any standards that are over 5 years old
- Status of high priority standards efforts
  - Top 10 standards progress & 11-20 standards evaluation (Attachment 16)
- Personnel needs/actions taken
- Identification and progress of new standards, including status of project plans
- Plan for inquiries over 2 months old

A. Environmental and Siting Consensus Committee (ESCC)

ESCC Chair Carl Mazzola reviewed ESCC projects. He was pleased to say that the committee has great support. Mazzola summarized his chair report (Attachment 17). A few additional points were made.

- ESCC has had difficulty finding support to reinvigorate two historical standards—ANS-2.13, "Evaluation of Surface-Water Supplies for Nuclear Power Sites," and ANS-2.19, "Guidelines for Establishing Site-Related Parameters for Site Selection and Design of Independent Spent Fuel Storage Installation (Water Pool Type)."

- A chair has recently been found for ANS-2.22, "Environmental Radiological Monitoring at Nuclear Facilities."
- The direction and need for ANS-3.16, "Meteorological Aspects of Wildland Fire Response," has been questioned.
- A revision of ANSI/ANS-2.3-2011 (R2016), "Estimating Tornado, Hurricane, and Extreme Straight Line Wind Characteristics at Nuclear Facility Sites," will be initiated soon; much is happening in this segment of the industry.

ACTION ITEM 10/2017-21: Carl Mazzola to work with Jennifer Call (Siting: Atmospheric Subcommittee Chair) to determine the direction and need of proposed new standard ANS-3.16, "Meteorological Aspects of Wildland Fire Response."
DUE DATE: March 15, 2018

Robert Budnitz suggested that the ESCC would be interested in the high winds probabilistic risk assessment and that Larry Twisdale would be a good candidate for the ANS-2.3 Working Group.

ACTION ITEM 10/2017-22: Robert Budnitz to provide Carl Mazzola the high winds PRA and Larry Twisdale's contact information.
DUE DATE: November 15, 2017

B. Fuel, Waste, and Decommissioning Consensus Committee (FWDCC)
FWDCC Chair David Hillyer stated that he recently stepped into the role of FWDCC chair having taken over for Donald Eggett. His written report is available as Attachment 18. Hillyer made the following comments:

- While there are no delinquent standards, the committee has many staffing needs.
- They are looking to develop a decommissioning standard; possibly more than one.
- Several working group members have been recruited; however, he has had difficulty finding chairs.
- Jean-Francois Lucchini has just agreed to serve as the FWDCC vice chair.
- The committee may collaborate with subject matter experts from China and Japan.

Donald Eggett informed Hillyer of a series of decommissioning standards initiated 15 to 20 years ago with the ANS-3.12.X series designation. He recalled that at least one rough draft had been prepared but not completed. Any drafts and names of past working group members might be of interest to him.

ACTION ITEM 10/2017-23: Pat Schroeder to check the files and provide David Hillyer names of past ANS-3.12.X working group members and a copy of any drafts found.
DUE DATE: November 15, 2017

Hillyer ended stating that he would welcome support from RP3C to incorporate RIPB in FWDCC standards. Prasad Kadambi suggested he look at ANSI/NFPA-805-2015, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," for the framework. A copy of the standard is publically available.

C. Joint Committee on Nuclear Risk Management (JCNRM)
JCNRM Co-Chair Robert Budnitz explained that the JCNRM Standards Committee (standards committee is ASME's term for consensus committee) has just over 30 members with about a total of 100 members inclusive of subcommittees and working groups. They have no staffing needs and a good amount of participation from young professionals. The JCNRM has full utility participation including owner group representatives. All committees have NRC representation.

There are no society conflicts between ASME and ANS. Progress on maintenance and development of JCNRM standards can be found in the written report (Attachment 19). JCNRM has an international working group (IWG) with China and Japan. An IWG with Korea is being formed, and the Canadians are considering forming an IWG with the JCNRM. Past NRC Commissioner George Apostolakis recently joined the JCNRM Standards Committee as a member.

D. Large Light Water Reactor Consensus Committee (LLWRCC)
LLWRCC Chair Gene Carpenter updated members on LLWRCC activities, projects in development, and open ballots. The provided report was summarized (Attachment 20). The following additional details were provided:

- The LLWRCC recommends a possible redirection of emergency preparedness (EP) standards for new non-light water reactors. Work on the EP standards has been on hold for some time waiting for a DOE review of ANS-3.8.7, "Criteria for Planning, Development, Conduct and Evaluation of Drills and Exercises for Emergency Preparedness."
- The LLWRCC suggested consideration of preoperational and startup testing standard (ANS-3.6) (ranked #18 on survey) be redirected to NRNFCC.
- A few negative votes were submitted on the ballot of ANS-3.5, "Nuclear Power Plant Simulators for Use in Operator Training and Examination," appear to be unresolvable. A recirculation ballot is expected soon.
- The revision of ANS-58.8, "Time Response Design Criteria for Safety-Related Operator Actions," will include performance-based insights.
- The LLWRCC has three delinquent standards. All are out for ballot either for reaffirmation or revision.
- Progress on ANS-3.15 on cybersecurity (title TBD) has been slow. The working group chair has requested additional support to assist with leadership. A NRC representative is being solicited. A representative from the Department of Defense will also be sought.
- A new inquiry has just been received on ANSI/ANS-3.1-1993 (R1999) (W2009), "Selection, Qualification, and Training of Personnel for Nuclear Power Plants."

ACTION ITEM 10/2017-24: Pat Schroeder to research and provide Gene Carpenter the contact information for the DOE staff member appointed to review ANS-3.8.7, "Criteria for Planning, Development, Conduct and Evaluation of Drills and Exercises for Emergency Preparedness."
DUE DATE: November 15, 2017

ACTION ITEM 10/2017-25: Gene Carpenter to contact DOE staff member to follow up on the review of ANS-3.8.7, "Criteria for Planning, Development, Conduct and Evaluation of Drills and Exercises for Emergency Preparedness."
DUE DATE: December 1, 2017

ACTION ITEM 10/2017-26: Pat Schroeder to add ANS-58.8, "Time Response Design Criteria for Safety-Related Operator Actions," to the list of ANS standards in development and using RIPB methods.
DUE DATE: November 15, 2017

ACTION ITEM 10/2017-27: Gene Carpenter to solicit the following for the ANS-3.15 Working Group on cybersecurity:
1) NRC representative
2) DOD representative
3) Additional leadership
DUE DATE: December 31, 2017

E. Nonreactor Nuclear Facilities Consensus Committee (NRNFCC)
NRNFCC Chair James O'Brien summarized the written report provided as Attachment 21. They have two standards in development and one current standard. ANS-3.14, "Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities," was making good progress and will likely be issued for ballot in the near future. Progress has been slow on ANS-57.11, "Integrated Safety Assessments for Nonreactor Nuclear Facilities." While not currently needed, members thought that ANS-57.11 would be of benefit in the future. O'Brien stated that he believes current standard ANSI/ANS-58.16-2014, "Safety Categorization and Design Criteria for Nonreactor Nuclear Facilities," is not being used by the industry which will be factored into the maintenance decision. Carl Mazzola informed members that he recently learned that DOE is developing a white paper related to ANS-3.14. Once completed, ANS-3.14 will be of benefit to DOE.

F. Nuclear Criticality Safety Consensus Committee (NCSCC)
NCSCC Chair Larry Wetzel reported that the NCSCC has one Project Initiation Notification System (PINS) in approval which is for their base standard—ANS-8.1, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors." He explained difficulties in the development of ANS-8.3, "Criticality Accident Alarm System," creating delays in completing the revision. Wetzel believes that it is back on track. Several other standards are in revision and one new standard is in development. Full details can be found in the written report (Attachment 22). Wetzel is striving for 100% participation on all ballots. He added that he has asked the ANS-8 Subcommittee Chair to take a look at standards that have not been recently revised, check sales, and determine industry use when considering the next maintenance action.

G. Research and Advanced Reactors Consensus Committee (RARCC)
RARCC Chair George Flanagan asked ANS-30.1 Working Group Chair Mark Linn to provide members an update on ANS-30.1 "Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs." Linn reported that the working group has recently received interest from a few major vendors to participate. The working group had a good start but needs additional help to move forward and complete the draft. Linn explained that the group is now focused on new non-light water reactors since new project ANS-30.3, "Advanced Light-Water Reactor Risk-Informed Performance-Based Design Criteria and Methods," was initiated for advanced light water reactors. ANS-30.1 is trying to provide a RIPB process for designers with sufficient flexibility. ANS-30.1 will link to ANS-30.2, "Structures, Systems, and Component Classification for Nuclear Power Plants," and the LMP. The goal for ANS-30.1 is to use RIPB insights to insure design process from beginning to end is not two steps forward, one step back.

Flanagan added that ANS-54.1, "Nuclear Safety Criteria and Design Process for Liquid-Sodium-Cooled Reactor Nuclear Power Plants," would be issued for ballot soon and that ANSI/ANS-15.1-2007 (R2013), "The Development of Technical Specifications for Research Reactors," was being reviewed to determine if it could accommodate larger test reactors. Additional details of RARCC activities can be found in the RARCC chair report available at Attachment 23.

H. Safety and Radiological Analyses Consensus Committee (SRACC)
SRACC Chair Andrew Smetana summarized his chair report available as Attachment 24. The following points were reported:

- ANS-10.4, "Verification and Validation of Non-Safety-Related Scientific and Engineering Computer Programs for the Nuclear Industry," has been fully staffed. A kickoff meeting was held the previous day.

- ANSI/ANS-5.4-2011, "Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel," is being reviewed for maintenance.
- ANSI/ANS-10.2-2000 (R2009), "Portability of Scientific and Engineering Software" will be allowed to be administratively withdrawn; update to be initiated when technology stabilizes.
- They are trying to find a working group chair for ANS-41.5, "Verification and Validation of Radiological Data for Use in Waste Management and Environmental Remediation," as it is time for maintenance to be performed.
- SRACC feels that it is premature to develop a standard on severe accident without knowing the type of reactor, otherwise it would need to be too generic to be of any use.
- SRACC members agreed that a decay heat standard for advanced reactors would be premature at this time.

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

- SB Task Group (TG) (TG List – Attachment 25)

  It was recognized that the SB chair was responsible for appointing task group members. Several new chairs need to be appointed and new SB members assigned to a TG. The Priority TG was dissolved at the last meeting. In light of considerations of partnering with Techstreet, the following motion was made:

  **MOTION:** to dissolve the Sales TG.

The motion was unanimously approved.

- Liaison reports (Liaison List – Attachment 26)
  Carl Mazzola clarified that he should only be the liaison for the American Society of Civil Engineers (ASCE), not for the American Concrete Institute (ACI) or the American Institute of Steel Construction (AISC). Pat Schroeder was asked to make this correction as well as change the Nuclear Energy Institute (NEI) liaison to Russ Bell and add Western European Nuclear Regulators Association (WENRA) to the external liaisons list.

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| ACTION ITEM 10/2017-289: Steven Arndt to set up a meeting with Russ Bell and senior NEI leaders.<br>DUE DATE: December 31, 2017 |

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| ACTION ITEM 10/2017-29: Pat Schroeder to update the external liaison list as follows:<br>1) Carl Mazzola is the liaison for ASCE, not AIC or AISC.<br>2) Russ Bell is the NEI liaison.<br>3) Add the acronym for WENRA to the list.<br>DUE DATE: December 15, 2017 |

Prasad Kadambi reported on an American National Standards Institute Policy Committee meeting he recently attended. He informed members of an organization he learned about at the meeting called the IFIA that deals with conformity assessment. Roberta Telles, their executive director, was at the meeting and provided a presentation. Kadambi is trying to get more information on conformity assessment and will invite Telles to attend a future SB meeting to talk on this subject.

Charles Moseley reported that a 2017 edition of ANSI/ASME NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications," will be issued before the end of the year. It is expected that the NRC will endorse the standard.

Robert Budnitz reported on WENRA activities. They meet twice a year for two or three days to coordinate policies. A request was made for a liaison with ANS in case any issues arrived. Budnitz had recent contact with the WENRA chair about six months ago. WENRA is not maintaining standards but remains active for communication between European facilities.

**13. Other Business**

No other business was discussed.

**14. Review of Action Items from This Meeting**

New action items assigned at the meeting were reviewed.

**15. Future Meetings**

The SB holds a physical meeting on Tuesday of both the ANS annual and winter meetings. The next annual and winter meetings are listed below:

- ANS Annual Meeting, June 17-21, 2018, Marriott Philadelphia Downtown, Philadelphia, PA
- ANS Winter Meeting, November 11-15, 2018, Hilton Orlando Bonnet Creek

A suggestion was made for a call to be scheduled between meetings to address action items and other emergent issues. The month of February was suggested as a possibility for the call.

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| ACTION ITEM 10/2017-30: Pat Schroeder to issue a poll to seek members' availability for a teleconference in February of 2018.<br>DUE DATE: November 15, 2017 |

Donald Eggett suggested that a letter of appreciation be sent to Michaele Brady Raap on behalf of the SB to thank her for many years of support to the ANS standards program.

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| ACTION ITEM 10/2017-31: Steven Arndt and Donald Eggett to draft a letter of appreciation to Michaele Brady Raap on behalf of the SB.<br>DUE DATE: November 15, 2017 |

**16. Adjournment**

Before adjourning, Steven Arndt asked members to identify what they thought was the most important message they heard. Members cited the message from ANS President Robert Coward regarding opportunity, the need to get there faster, to understand customer needs, and to set priorities.

With no further business, the meeting was adjourned.

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 10/2017-01 | Pat Schroeder to add a date to future updates of the Standards Committee Assessment Form.<br>DUE DATE: May 1, 2018 | Pat Schroeder | OPEN |
| 10/2017-02 | Robert Budnitz and Andrew Sowder to send Steven Stamm their sentiments on why it is not appropriate to quantify the number of RIPB standards to be developed for use in a letter to the ExC.<br>DUE DATE: November 15, 2017 | Robert Budnitz<br>Andrew Sowder<br>Steven Stamm | OPEN |
| 10/2017-03 | Steven Arndt to send a letter to the ExC to explain SB member sentiments on why it is not appropriate to set a numerical metric for the development of RIBP standards in the next five years.<br>DUE DATE: November 30, 2017 | Steven Arndt | OPEN |
| 10/2017-04 | Steven Stamm to update the Standards Committee Strategic Plan and accompanying SMART Matrix per discussions and to remove a numerical metric for development of RIPB standards.<br>DUE DATE: December 15, 2017 | Steven Stamm | OPEN |
| 10/2017-05 | Robert Budnitz to check with the JCNRM Executive Committee on a way to poll JCNRM members for input on conditions that have led to active industry involved in JCNRM standards that do not apply to other ANS standards.<br>DUE DATES: November 30, 2017 | Robert Budnitz | OPEN |
| 10/2017-06 | Robert Budnitz to provide George Flanagan contact information for ASCE representatives to be invited to the industry workshop to create a strategic vision for development of advanced reactor standards.<br>DUE DATE: November 15, 2017 | Robert Budnitz | OPEN |
| 10/2017-07 | Consensus committee chairs to participate or select a representative to support the industry workshop to create a strategic vision for development of advanced reactor standards. Consensus committee chairs should provide the name of their representative to George Flanagan and Pat Schroeder.<br>DUE DATE: December 31, 2017 | Consensus Committee Chairs | OPEN |
| 10/2017-08 | Amir Afzali, Gene Carpenter, Prasad Kadambi, John Nakoski, James O'Brien, and Pat Schroeder to assist George Flanagan in working with NRC and DOE to organize the workshop to create a strategic vision for development of advanced reactor standards.<br>DUE DATE: December 31, 2017 | Amir Afazli, Gene Carpenter, Prasad Kadambi, John Nakoski, James O'Brien, Pat Schroeder | OPEN |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 10/2017-09 | Robert Budnitz, Prasad Kadambi, and Larry Wetzel to send William Turkowski and Pat Schroeder updates to the PD Liaison List.<br>DUE DATE: December 1, 2017 | Robert Budnitz, Prasad Kadambi, Larry Wetzel | OPEN |
| 10/2017-10 | Steven Arndt to talk with PD Committee Chair Hans Gouger to insure appointments of PD liaisons are provided to William Turkowski and Pat Schroeder to update the list.<br>DUE DATE: December 31, 2017 | Steven Arndt | OPEN |
| 10/2017-11 | William Turkowski and Pat Schroeder to update the PD/SC Liaisons List and distribute to consensus committee chairs.<br>DUE DATE: January 15, 2018 | William Turkowski, Pat Schroeder | OPEN |
| 10/2017-12 | Consensus committee chairs to follow up with new liaison when updated list available.<br>DUE DATE: February 15, 2018 | Consensus Committee Chairs | OPEN |
| 10/2017-13 | Donald Eggett to contact the ANS Student Conference chair for the upcoming Student Conference next April at the University of Florida-Gainsville to explore their interest and opportunity for a standards presentation. (see http://www.ansstudentconference2018.com/contact.html)<br>DUE DATE: December 1, 2017 | Donald Eggett | OPEN |
| 10/2017-14 | Steven Arndt to work with consensus committee chairs to establish an annual process to identify opportunities and representatives to make presentations at topical meetings, conferences, and local sections to encourage standards participation.<br>DUE DATE: December 31, 2017 | Steven Arndt | OPEN |
| 10/2017-15 | George Flanagan to provide members his standards informational presentation for use as a template.<br>DUE DATE: December 1, 2017 | George Flanagan | OPEN |
| 10/2017-16 | Members to review the SMART Matrix and provide the status of open actions to Steven Stamm.<br>DUE DATE: December 1, 2017 | SB Members | OPEN |
| 10/2017-17 | Pat Schroeder to separate the open and completed action items on reports for review at subsequent meetings.<br>ACTION ITEM: June 1, 2018 | Pat Schroeder | OPEN |
| 10/2017-18 | Pat Schroeder to send Steven Arndt a copy of the TG Scope and Member list so that he can update as directed by Action Item 6/2017-04.<br>DUE DATE: November 15, 2017 | Pat Schroeder | OPEN |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 10/2017-19 | Consensus committee chairs to review the RP3C categorization spreadsheet of standards and projects recommended to incorporate RIPB methods and develop a path forward with priorities. Consensus committee plans (including variances from the recommendations) to be reported back to the SB and RP3C. (The list includes projects under ESCC, FWDCC, LLWRCC, NRNFCC, and RARCC.) DUE DATE: January 31, 2018 | ESCC, FWDCC, LLWRCC, NRNFCC, and RARCC Consensus Committee Chairs | OPEN |
| 10/2017-20 | Consensus committee chairs to review the draft RP3C guidance document and submit any comments to Prasad Kadambi and Pat Schroeder. DUE DATE: December 1, 2017 | Consensus Committee Chairs | OPEN |
| 10/2017-21 | Carl Mazzola to work with Jennifer Call (Siting: Atmospheric Subcommittee Chair) to determine the direction and need of proposed new standard ANS-3.16, "Meteorological Aspects of Wildland Fire Response." DUE DATE: March 15, 2018 | Carl Mazzola | OPEN |
| 10/2017-22 | Robert Budnitz to provide Carl Mazzola the high winds PRA and Larry Twisdale's contact information. DUE DATE: November 15, 2017 | Robert Budnitz | OPEN |
| 10/2017-23 | Pat Schroeder to check the files and provide David Hillyer names of past ANS-3.12.X working group members and a copy of any drafts found. DUE DATE: November 15, 2017 | Pat Schroeder | OPEN |
| 10/2017-24 | Pat Schroeder to research and provide Gene Carpenter the contact information for the DOE staff member appointed to review ANS-3.8.7, "Criteria for Planning, Development, Conduct and Evaluation of Drills and Exercises for Emergency Preparedness." DUE DATE: November 15, 2017 | Pat Schroeder | OPEN |
| 10/2017-25 | Gene Carpenter to contact DOE staff member to follow up on the review of ANS-3.8.7, "Criteria for Planning, Development, Conduct and Evaluation of Drills and Exercises for Emergency Preparedness." DUE DATE: December 1, 2017 | Gene Carpenter | OPEN |
| 10/2017-26 | Pat Schroeder to add ANS-58.8, "Time Response Design Criteria for Safety-Related Operator Actions," to the list of ANS standards in development and using RIPB methods. DUE DATE: November 15, 2017 | Pat Schroeder | OPEN |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| **10/2017-27** | **Gene Carpenter to solicit the following for the ANS-3.15 Working Group on cybersecurity:**<br>• **NRC representative**<br>• **DOD representative**<br>• **Additional leadership**<br>**DUE DATE: November 15, 2017** | **Gene Carpenter** | **OPEN** |
| **10/2017-28** | **James O'Brien to check with Pranab Guha on DOE's plan to develop a standard similar to ANS-3.14, "Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities."**<br>**DUE DATE: December 1, 2017** | **James O'Brien** | **OPEN** |
| **10/2017-29** | **Steven Arndt to set up a meeting with Russ Bell and senior NEI leaders.**<br>**DUE DATE: December 31, 2017** | **Steven Arndt** | **OPEN** |
| **10/2017-30** | **Pat Schroeder to update the external liaison list as follows:**<br>**1) Carl Mazzola is the liaison for ASCE, not AIC or AISC.**<br>**2) Russ Bell is the NEI liaison.**<br>**3) Add the acronym for WENRA to the list.**<br>**DUE DATE: December 15, 2017** | **Pat Schroeder** | **OPEN** |
| **10/2017-31** | **Pat Schroeder to issue a poll to seek members' availability for a teleconference in February of 2018.**<br>**DUE DATE: November 15, 2017** | **Pat Schroeder** | **OPEN** |
| **10/2017-32** | **Steven Arndt and Donald Eggett to draft a letter of appreciation to Michaele Brady Raap on behalf of the SB.**<br>**DUE DATE: November 15, 2017** | **Steven Arndt, Donald Eggett** | **OPEN** |
| 06/2017-01 | George Flanagan to provide Pat Schroeder the State of the Society presentation for distribution to SB members. | George Flanagan | CLOSED<br><br>Emailed to members on 6/14/17. |
| 06/2017-02 | Individuals noted below are to prepare short presentations in their areas of responsibility for use at the September 26th NRC Standards Forum:<br>• Gene Carpenter: reactor coolant radiological source terms for normal operation & EPZ size evaluation.<br>• George Flanagan: design standards for liquid metal reactors (including sodium fluoride reactors)<br>• Prasad Kadambi: methodology for risk-informed strategies<br>• Ed Wallace: design standards for high temperature gas reactors | Gene Carpenter, George Flanagan, Prasad Kadambi, Ed Wallace | CLOSED<br><br>Presentation prepared by G. Flanagan with update of all topics.<br>Presentation prepared by P. Kadambi.<br><br>Presentations distributed to SB members and included in 10/31/17 meeting materials. |
| 06/2017-03 | Michaele Brady Raap to form a subgroup to evaluate how ANS can support the NRC Standards Forum, determined additional standards ANS can champion, and to incorporate these findings in the Standards Committee Strategic Plan. | Michaele Brady Raap | CLOSED<br><br>Subgroup formed with G. Flanagan (chair), C. Carpenter, and J. Nakoski |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| **06/2017-04** | **Steven Arndt to review the chair and members for all of the TGs and solicit/adjust as appropriate (scopes/member lists – Attachment 3 of 6/13/17 minutes). Specific actions discussed include the following:**<br>• **Solicitation of new External Communications TG Chair**<br>• **Add Amir Afzali as a member of the External Communications TG**<br>• **Solicitation of new Sales TG Chair**<br>**DUE DATE: December 31, 2017** | **Steven Arndt** | **OPEN**<br><br>The action item was reassigned to S. Arndt as the new SB chair.<br><br>New action Item assigned for P. Schroeder to provide S. Arndt a copy of the TG Scope & Member list. |
| 06/2017-05 | Michaele Brady Raap to request that Craig Piercy let the SB know of bills in Congress that may result in grant opportunities for standards. | Michaele Brady Raap | CLOSED<br><br>M. Brady Raap sent email to C. Piercy on 8/22/17 & held discussion 9/15/17. |
| 06/2017-06 | Steven Stamm to revise the responses to the Executive Committee comments on the Standards Committee Strategic Plan as follows:<br><br>Comment Response #6: Add a statement that risk-informed and/or performance-based (RIBP) standards will be developed on a case-by-case basis as appropriate and recognize the action item assigned during the RP3C meeting for all standards and projects be evaluated and a recommendation made to incorporate RIPB insights, as applicable.<br><br>Comment Response #9: Include a statement that the SB will work proactively to determine potential funding opportunities that may result in standards grants.<br><br>Comment Response #13: Include the sentiment of the SB that ANS members are being engaged citing the Standards Priority Survey as an example. | Steven Stamm | CLOSED<br><br>Response finalized and provided to Executive Committee on 7/27/17. SB members on CC. |
| 06/2017-07 | Consensus Committee Chairs to emphasize the importance of reviewing the training presentations by working groups. | Consensus Committee Chairs | CLOSED<br><br>• Item added to winter meeting agendas for NRNFCC, RARCC, and SRACC.<br>• NCSCC Chair sent email to WGCs 8/28/17 emphasizing the importance of reviewing PPTs.<br>• ESCC Chair emphasized training presentations on 7/20/17 teleconference call.<br>• LLWRCC Chair emphasized importance of training program on 8/25/17 teleconference.<br>• FWDCC Chair emphasized training on 7/27/17 teleconference.<br>• NA for JCNRM |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 06/2017-08 | Incoming SB Chair Michaele Brady Raap to contact Dr. Abraham Weitzberg to inform him that he has been selected as the 2017 recipient of the Standards Service Award. | Michaele Brady Raap | CLOSED<br><br>Formal notification letters issued to all 7/18/17. |
| 06/2017-09 | Pat Schroeder to 1) repurpose the existing site for consensus committee and subcommittee chairs to include all SB members allowing access to ANS standards, 2) add all open PINS forms and project plans to this workspace, and 3) notify SB members when completed and provide links to access. | Pat Schroeder | CLOSED<br><br>See documents page of the Standards Documentation Site Workspace. (Direct URL to documents page) |
| 06/2017-10 | Robert Budnitz to provide Steven Stamm a copy of the JCNRM Milestone Schedule as their project plan. | Robert Budnitz | CLOSED<br><br>Provided and distributed to SB via email 6/15/17. |
| 06/2017-11 | Pat Schroeder to add the staffing tracking report to each consensus committee report. | Pat Schroeder | CLOSED<br><br>See chair reports. |
| 06/2017-12 | Steven Stamm to update the SMART Matrix as discussed. This includes the following:<br>• Completion dates should be revised.<br>• Actions for the Priority TG should revised/reassigned.<br>• The status of Goal 1.C should be corrected to recognize the External Communications TG Chair.<br>• Goal 3.E should be revised to be more proactive in anticipating potential upcoming grant opportunities.<br>• The year for Goal 4.B should be changed to 2018. | Steven Stamm | CLOSED<br><br>Update provided 6/16/17 and included as attachment in 6/13/17 meeting minutes. (link to minutes) |
| 06/2017-13 | Pat Schroeder to provide the SB Chair options to redefine the balance of interest categories to reduce classification of members in the “Individual” category to the SB Chair for consideration. | Pat Schroeder | CLOSED<br><br>Option provided to SB Chair 8/22/17 for consideration. |
| 06/2017-14 | Consensus Committee Chairs to review the list of liaisons to ANS PDs and suggest the relevant consensus committee(s). | Consensus Committee Chairs | CLOSED<br><br>List updated. New action item opened for another update. |
| 06/2017-15 | Pat Schroeder to add totals to track associate members on the associate member log. | Pat Schroeder | CLOSED<br><br>See report |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| **06/2017-16** | **RP3C to issue their operating plan with inclusion of the following:**<br>• **RP3C action item to categorize all ANS standards and projects (i.e., current, withdrawn, active, inactive) into one of three categories -- RIPB, PB, or not applicable.**<br>• **Implementation of RIPB principles in ANS-3.14, "Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities," and ANS-58.14, "Safety and Pressure Integrity Classification Criteria for Light Water Reactors."**<br>• **SB decisions on ANS Executive Committee inputs, and**<br>**DUE DATE: September 1, 2018** | **RP3C**<br><br>**Prasad Kadambi, Ed Wallace** | **OPEN**<br><br>Last bullet for RP3C to address statement from R. Busch deleted as requested at 10/31/17 meeting. |
| 06/2017-17 | Larry Wetzel to check with Robert Busch on the purpose and background of his proposed statement. | Larry Wetzel | CLOSED<br><br>L. Wetzel contacted R. Busch. The below additional info was provided to M. Brady Raap on 8/30/17: "His concern is while implicit it needs to be explicitly stated that economics must factor into development and implementation of standards when related to risk." |
| **06/2017-18** | **The Policy TG to determine how the statement on standards development drafted by Robert Busch is addressed.**<br>**DUE DATE: December 15, 2017** | **Policy TG** | **OPEN** |
| 06/2017-19 | Robert Budnitz to provide the SB a copy of the comment resolutions on the Part 5 Case. | Robert Budnitz | CLOSED<br><br>Comment responses issued with the recirculation ballot for LB #410. |
| 06/2017-20 | James O'Brien to discuss broadening the scope of ANS-57.11 to include molten salt reactors with the project's chair. | James O'Brien | CLOSED<br><br>J. O'Brien discussed with ANS-57.11 WGC B. Eble then discussed w/T. Hiltz. They feel method is generic and can accommodate MSRs. Consideration being given to revising the PINS to include MSR as a stakeholder. |
| 06/2017-21 | Pat Schroeder to distribute Amir Afzali's presentation on the Licensing Modernization Program to SB members. | Pat Schroeder | CLOSED<br><br>Presentation distributed 6/19/17 |
| 1/2017-01 | Ed Wallace to provide George Flanagan a copy of NEI 15-02, "Industry Guidance for the Development of Tier 1 and ITAAC Under 10 CFR Part 52," as it may be relevant to Action Item 11/2016-07 for the development of an ITAAC standard for advanced reactors. | Ed Wallace | CLOSED<br><br>Provided 1/25/17 |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 1/2017-02 | Pat Schroeder to schedule a teleconference to discuss Ed Wallace's comments on the Documentation Requirements proposal along with Steven Stamm. | Pat Schroeder | CLOSED<br><br>Call held 2/6/17. |
| 1/2017-03 | George Flanagan to check with David Pointer about Carl Mazzola's offer to present the non Standards Committee member presentation to the Membership Committee at their next meeting. | George Flanagan | CLOSED |
| 1/2017-04 | James O'Brien to provide Steven Stamm the current draft of the RIPB Plan. | James O'Brien | CLOSED<br><br>Draft provided 1/25/17 |
| 1/2017-05 | Pat Schroeder to add an agenda item for the June 2017 Standards Board meeting to discuss possible future grant opportunities and the status of the prioritization effect. (relates to Goal #3E of the SMART Matrix). | Pat Schroeder | CLOSED<br><br>Item added under SC Strategic Plan Report. NOTE: Action questioned in light of notice that no grants w/b issued in near future. |
| 1/2017-06 | Pat Schroeder to send the ESCC Metric Evaluation to Ed Wallace for reference. | Pat Schroeder | CLOSED<br><br>Sent 1/25/17 |
| 1/2017-07 | Donald Eggett to check with William Turkowski to confirm whether a "plan" or guidance was provided to PD liaisons (relates to Goal #3F3 of the SMART Matrix). | Donald Eggett<br><br>NOTE: responsibility transferred to D. Eggett as new SB VC. | CLOSED<br><br>W. Turkowski responded that the plan has been completed and a PPT developed. Presentation to be provided to PD liaisons once PD liaison list is updated as directed by Action Item 6/2017-13. PPT uploaded to Workspace. |
| 1/2017-08 | Pat Schroeder to send a copy of the industry newsletter prepared for James Riley's use to Steven Stamm and Ed Wallace to see if it could be provided to other companies for inclusion in their newsletters. (relates to Goal #4H of the SMART Matrix) | Pat Schroeder | CLOSED<br><br>Sent 1/25/17 |
| 11/2016-02 | George Flanagan, as the RARCC Chair, should direct that inputs from the Licensing Modernization Project be considered in prioritization of ANS non-LWR advanced reactors. | George Flanagan | CLOSED<br><br>Discussed and will continue to be discussed as appropriate. |
| 11/2016-03 | George Flanagan to provide the SB the gap analysis developed by ORNL once completed. | George Flanagan | CLOSED<br><br>Report emailed 10/16/17 |
| 11/2016-04 | Pat Schroeder to add an agenda item for the November 2017 meeting to discuss an advanced reactor proposal for development of a roadmap/priority list. | Pat Schroeder | CLOSED<br><br>Added to draft agenda under "Current Issues" |
| 11/2016-07 | George Flanagan to work with RARCC to consider a new standard on ITAAC for advanced reactors. | George Flanagan | CLOSED<br><br>No interest found |
| **11/2016-08** | **Prasad Kadambi to work with Steven Arndt on preparing a conformity assessment business case.**<br>**DUE DATE: June 1, 2018** | **Prasad Kadambi** | **OPEN**<br><br>Kadambi has invited Ms. Roberta Telles to address the SB on conformity assessment. |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 11/2016-17 | Consensus Committee Chairs to follow up with their Professional Division Liaison to facilitate participation. (Draft PD liaison list) | Consensus Committee Chairs | CLOSED<br><br>List being updated and new action item opened for CC chairs to follow up. |
| 11/2016-18 | Carl Mazzola to let the Professional Division Chair know of poor response from Professional Division Liaisons. | Carl Mazzola | CLOSED<br><br>Issue addressed and new action items opened. |
| 11/2016-19 | William Turkowski to add Paul Hulse as the Mathematics & Computations Professional Division Liaison. | William Turkowski | CLOSED<br><br>Turkowski confirmed 1/30/17 that P. Hulse was added. |
| **11/2016-20** | **Gene Carpenter to work with Russ Bell to create a process to provide information to utilities.**<br>**DUE DATE: December 31, 2017** | **Gene Carpenter, Russ Bell** | **OPEN**<br><br>Reassigned to R. Bell at 10/31/17 meeting. |
| 11/2016-21 | Consensus Committee Chairs to speak with their subcommittee chairs to make sure they are aware of the toolkit and the standards development process. | Consensus Committee Chairs | CLOSED |
| 11/2016-22 | RP3C to provide the SB their risk-informed, performance-based educational piece (or toolkit) for working groups once completed for review. | Prasad Kadambi, Ed Wallace | CLOSED<br><br>Closed since this action item duplicates action on SMART Matrix. |
| **11/2016-35** | **Donald Eggett to solicit a liaison from IEEE.**<br>**DUE DATE: December 31, 2017** | **Donald Eggett** | **OPEN**<br><br>9/8/17: D. Eggett sent inquiry to Marco Migliaro of ISTO/IEEE at marco@esaconsulting.com but has not received a response. |
| **6/2016-03 #0123** | **Russell Bell to help coordinate ANS work on advanced reactor standards with other SDOs and industry.**<br>**Due Date: On-going** | **NEI Liaison** | **On-going** |

# Standards Board Action Item Report

As assigned or reported at the 10/31/17 meeting

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| **6/2016-14 #0130 & #0131** | **Steven Arndt/External Communications Task Group to evaluate and improve the process of notifying the public and NEI/utilities of standards development activities.** **Due Date: January 31, 2018** | **Steven Arndt, External Communications Task Group** | **OPEN** S. Arndt was added to this action item at 10/31/17 meeting. |
| **6/2016-18 #0146 & #0147** | **Gene Carpenter to discuss the needed action on standards ranked 11-20 on the standards priority survey with their consensus committee and provide input at the SB meeting in November.** **Due Date: January 31, 2018** | **Gene Carpenter** | **OPEN** With responses from all CCs but LLWRCC, the action item was amended to reflect Gene Carpenter responsible. |
| **02/2016-07 #0119** | **John Nakoski to check with the NRC to see if they have reviewed ANSI/ANS-5.1-2014 and are considering replacing the reference of the ANS-5.1 1971 draft in 10CFR50, Appendix K.** **DUE DATE: January 31, 2018** | **John Nakoski** | **OPEN** |
| **11/2015-21** | **The LLWRCC to approve a PINS for a cybersecurity standard and forward to the standards manager.** **DUE DATE: January 31, 2018** | **Gene Carpenter** | **OPEN** PINS in development |
| 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 September 2018. | Pat Schroeder | CLOSED Replaced by new action item. |
| 11/2014-08 | Pat Schroeder to create a similar solicitation broadcast to the YMG and NA-YGN. | Pat Schroeder | CLOSED Replaced by new action item. |

# STANDARDS BOARD

CHAIR: Michaele Brady Raap, Ph.D. VICE CHAIR: Donald R. Eggett

## MISSION

ANS Committee Mission Statement (Excerpt fromR7.1.4 9(n)):
The Standards Board (SB) provides policy and procedural direction for the standards activities of the Society. The SB shall be composed of no more than twenty (20) Members including the chairs of the consensus committees and no fewer than six (6) and no more than ten (10) appointed members which shall be Fellows, Members, Emeritus, or Honorary Life Members with substantial interest and experience in the development and use of standards for the application of nuclear science and engineering.

The Standards Board oversees the activities of the Standards Committee which 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. Consensus committees are established within the Standards Committee under the SB to develop and ensure consensus as a basis for approval of proposed or revised standards, 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. The chairs of each of the consensus committees shall serve as ex-officio voting members of the SB, whose terms are concurrent with those of the offices from which they serve.

The SB is 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 as non-voting members.

From time to time, special committees of the SB are established to support long-term needs of the Standards Committee.

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 shall confirm annually to the Board of Directors that the membership of each consensus committee has an appropriate balance of interest in accordance with the accredited Rules and Procedures established by the ANS Standards Board.

## COMMITTEE STATISTICS

NUMBER OF COMMITTEE MEMBERS: 19 (current members with appointments effective after June 2017 annual meeting)

# ANS COMMITTEE STRATEGIC PLANNING & ASSESSMENT

| | National/Annual Meetings | Other Meetings |
|---|---|---|
| NUMBER OF MTGS HELD IN LAST FY: | The Standards Board met June 13, 2017, during the ANS 2017 Annual Meeting | A teleconference was held in January of 2017. The meeting was topical applicable for members with action items. |
| NUMBER OF ATTENDEES AT LAST MEETING: | 15 of the 17 current members (88.2%) participated in the June 13, 2017, meeting | |
| DATE OF LAST MEETING W/ A QUORUM: | June 13, 2017 | |

## PLANNING AND ASSESSING

.

| GOALS (Consistent with Standards Committee Strategic Plan Goals) | ACTIONS (Consistent with Standards Committee Strategic Plan Initiatives) | RESULTS |
|---|---|---|
| 1. Align Standards Development Priorities with Current and Emerging Industry Needs | A series of initiatives were developed to establish an approach and supporting systems to periodically collect industry priority input and integrate it into the standards priorities and delivery targets. | An initial industry survey was performed and the recommendations evaluated and incorporated into our standards priorities as appropriate. The ongoing survey and Reliability and Performance Based program activities still need to be completed. |
| 2. Develop and Maintain High Quality Standards | A series of initiatives to ensure effective training and knowledge transfer is embedded in the standards development process and augment participant capabilities to develop and maintain high-quality standards. | A standards training program was developed and offered to Standards Committee (SC) members in 2016 and repeated in 2017.<br><br>An interface approach between the Professional Divisions (PD) and the consensus committees (CC) has been developed and rolled out and is in the process of being implemented to utilize the PD personnel to augment standards committee staffing when needed. The PD liaison list is being updated to reflect PD personnel changes after the June 2017 meeting. |
| 3. Improve Standards Development Production and Efficiency | A series of initiatives have been developed to improve efficiencies with respect to development and maintenance of ANS standards. | A requirement for a project plan was rolled out for use on new/revised standards. Several plans have been developed. Guidance was also issued to improve staffing, reaffirmation, PD interface, and use of the ANS Standards Workspace.<br><br>Reaffirmations have improved by ~300%. A program for evaluation |

| GOALS (Consistent with Standards Committee Strategic Plan Goals) | ACTIONS (Consistent with Standards Committee Strategic Plan Initiatives) | RESULTS |
|---|---|---|
| | | of CC performance has been initiated, results were evaluated, and needed actions taken by the CC chairs. An ongoing system for designation of high-priority standards still needs work. |
| 4. Expand ANS Awareness and External Outreach | A series of initiatives have been developed to increase industry participation through awareness of existing standards and standards development activities to ensure continuing relevance. | A survey was issued in 2015 and the results incorporated into standards planning. Acceptable progress continues to be made in the following areas:<br>• Support of the NRC Standards Forum<br>• Establishment of an interface with plant engineering managers via NEI<br>• Identification of industry and liaisons from other standards development organizations<br>• Formation of an ANS Professional Division/SC interface program<br>• Launch of an introductory standards training program for non-SC members<br><br>A task group has been established to improve external communication. Due to the lack of a chair, some of the remaining initiatives have been delayed. |
| 5. Improve Industry Representation and Sustainability of Working Groups, Subcommittees, and Consensus Committees | A series of initiatives have been developed to increase participation in ANS standards development to: (1) ensure continued technical capability of SC members; (2) enhance knowledge capture and transfer; and, (3) increase participation of young nuclear professionals. | The SC has initiated the following actions to increase standards participation and solicit new members:<br>• Advertisement through ANS publications and LinkedIn<br>• Improved interface with PDs<br>• Solicitation of YGN, NAYGN, and student members.<br>One item that has been requested for years but not developed is for the ANS IT Department to complete the Standards Volunteer Database to facilitate staffing. |

## COMMENTARY/SUMMARY

The objectives and actions listed above are excerpts from the Standards Committee Strategic Plan.

Changes to incorporate ANS EC Comments

# AMERICAN NUCLEAR SOCIETY (ANS)
# STANDARDS COMMITTEE STRATEGIC PLAN
## January 2016 through December 2020
## Revision 21 – November xx~~March 8~~, 2017

## Vision

The American Nuclear Society (ANS) Standards Committee is recognized as the~~a~~ leader in developing standards for the implementation of nuclear science and technology.

**Comment [SLS1]:** Addresses EC Comment2.

## Mission

To develop and maintain high-quality, consensus standards that continuously anticipate and meet the needs of the US nuclear industry[1] and to promote their broad acceptance, endorsement and use.

**Comment [SLS2]:** Addresses EC comment 3.

**Comment [SLS3]:** Addresses EC comment 4

## Goals and Objectives

Each of the following five goals is defined by its objective and supported by specific initiatives to achieve them.

### Goal #1: Align Standards Development Priorities with Current and Emerging Industry Needs

**Objective:** Establish an approach and supporting systems to periodically collect industry priority input and integrate it into the standards priorities and delivery targets

**Initiatives**

A. Evaluate the results from the initial industry standards priority survey
B. Assign responsibilities to the appropriate consensus committees to address the top ten survey identified high priority standards
C. Develop and implement an approach to collect industry priority needs on an ongoing basis and integrate them into standards committee priorities.
D. Incorporate risk-informed and performance-based methods in ANS standards, where appropriate, by:
    1. Develop the Risk-Informed Performance-Based Principles and Policy Committee Operating Plan
    2. Develop a Risk-Informed Performance-Based Principles training package for training of ANS Standards Committee members.
    3. Conduct training of consensus committees and working groups.
    4. The RP3C will work with each consensus committee to develop a prioritized list and schedule for incorporating risk-informed and performance-based principles into its standards. Collaboratively, they will Identify and define any new standards that are related to risk-informed and performance-based principles. Some of such work may already have been assigned to other standards working groups, and so it is important to work with the SB and CCs to identify an appropriate WG lead (and CC) for the standards

[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.

development with the objective of avoiding duplication.

5. Publishing a Nuclear News Article to inform other members of the Society of the benefits of this risk-informed and performance-based effort
6. Developing presentation materials that can be used to inform other industry groups as to the benefits and use of the ANS Standards Committee risk-informed and performance based standards activities
~~6.~~7. Produce at least three (3) standards containing risk-informed and/or performance-based requirements during the five-year plan period

**Comment [SLS4]:** Addresses EC comment 7.

## Goal #2: Develop and Maintain High Quality Standards

**Objective:** Ensure effective training and knowledge transfer is embedded in the standards development process and augment participant capabilities to develop and maintain high quality standards.

### Initiatives

A. Enhance the relationships with the ANS Professional Divisions and Technical Groups to assist in populating WGs with expert individuals. (also supports Goal 5)
B. Develop and Implement a standards training program for all Standards Committee members to ensure that standards development is consistent with current policies and procedures, thus, producing consistently better quality products in a timelier manner.
C. Assign a mentor to each new standards working group that is experienced in the use of ANS standard's procedures, policies, glossary and tool kit

## Goal #3: Improve Standards Development Production and Efficiency

**Objective:** Improve efficiencies with respect to development and maintenance of ANS standards

### Initiatives

A. Expedite development of high-priority standards proactively focusing on timely development of new standards to meet identified industry needs by improving Standards Board and consensus committee oversight using achievable project plans and definitive schedules with assigned milestones throughout the standards development cycle.
B. Complete the Standards Volunteer Database to facilitate recruiting personnel for Standards Committee activities (also supports Goal #5)
C. Assist the consensus committees in obtaining required human resources using outreach initiatives
D. Maximize use of the ANS Standards Workspace and other communications vehicles to eliminate the need for travel and face-to-face meetings to the maximum extent possible
E. Acquire funding (e.g., grants) to support the development of high-priority standards on an expedited basis.
F. Streamline the reaffirmation process to reduce the number of delinquent standards by establishing a systematic review of delinquent standards to start no later than the 4-yearmark. This can be accomplished through the following mechanisms:
    1. Automatically sending out a Reaffirmation Form to the WG chair with copies to subcommittee chair and consensus committee chair
    2. Automate subcommittee and consensus committee approvals of reaffirmation, withdrawal, and revision recommendations
    3. Establishing an ANS Professional Division and Technical Group sponsorship program to aid in review of associated delinquent standards with and without active working groups
G. Develop subcommittee/consensus committee metrics to identify opportunities for improvements

**Comment [SLS5]:** Addresses EC comment 8.

## Goal #4: Expand ANS Awareness and External Outreach

**Objective: Improve interfaces between the Standards organization and other segments of ANS and with ~~Increase industry participation~~**other industry organization ~~-~~through better communication related to ~~awareness of~~ existing standards and standards development activities to ensure continuing relevance.

**Comment [SLS6]:** Addresses EC comment 10

### Initiatives

A. Use periodic survey methods to gain feedback from industry, federal and state agencies; provide feedback to survey responders
B. Establish periodic leadership meetings with regulatory agencies, owner's groups and industry executives to align needs, and build support for development and greater use
C. Establish an ANS Professional Division sponsorship program to broaden input in setting standards priority
D. Seek liaison arrangements with relevant SDOs, where needed, to improve efficiency, effectiveness and consistency of standards across the industry where overlapping or interlocutory standards arise
E. Establish an approach to keep industry and trade groups advised of approved standards and in-progress standards in their areas of interest
F. Identify key international organizations that can contribute to specific ANS standards development projects, including work group participation, review of draft standards, and providing input into standards prioritization.
G. Establish a standards educational program for non-Standards Committee members to increase their knowledge of:
    1. what consensus standards are, and are not;
    2. benefit of consensus standards to the industry;
    3. advantages to companies, federal and state agencies, and individuals of supporting standards development
H. Contact leading nuclear companies to determine if they issue regular newsletters and offer to provide standards updates for inclusion.
I. Evaluate the cost effectiveness of a fee based training program for newly issued/revised standards.

## Goal #5: Increase ~~mprove~~ participation in ANS standards ~~Industry Representation and Sustainability of~~in ~~-~~Working Groups, Subcommittees, and Consensus Committees

**Comment [SLS7]:** Addresses EC comment 10

**Objective:** Increase participation in ANS standards development to: (1) ensure continued technical capability of standards committee members; (2) enhance knowledge capture and transfer; and, (3) increase participation of young nuclear professionals

### Initiatives

A. Approach owners' groups and industry organizations soliciting member participation in ANS standards
B. Send notices to ANS Student Section members, Young Member Group, Professional Division members, and North American-Young Generation Nuclear members to provide opportunities to participate in ANS standards
C. Enhance the relationships with the ANS Professional Divisions and Technical Groups to assist in populating WGs with expert individuals.(also supports Goal #1)
D. Advertise upcoming standards efforts with requests for support using *Nuclear News*, Nuclear Café, and ANS Linked-In Group

E. ANS IT Department to complete the Standards Volunteer Database, and make it available to subcommittee and consensus committee chairs (also supports Goal #3)
F. Monitor consensus committee and working group success in staffing and recruitment and share best practices across all consensus committees

## SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)

A SMART strategic plan consists of goals that are **S**trategic, **M**easurable, **A**ttainable, **R**ealistic and **T**ime-related. This matrix takes each of the Initiatives in the ANS SB Strategic Plan and defines the specific activities that need to be done for each Goal and Objective along with its proposed schedule and responsibility. This is a living document. Updates and comments from Standards Board Members will be solicited and the plan adjusted.

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| Completed | Near Term | Overdue | | | |
| **Goal #1 Align Standards Development Priories with Current and Emerging Needs** | | | | | |
| A. Evaluate the results of the initial industry priority survey | Standards Mgr | Executive Summary issued | | 1/2016 | 1/2016 |
| B. Assign responsibilities to the appropriate consensus committees to address the top ten survey identified high priority standards | Standards Mgr | Issue list of high priority standards with assigned responsibilities.<br>List discussed during 2/12/2016 conference call and published in minutes | | 2/29/2016 | 2/29/2016 |
| C. Develop and implement an approach to collect industry priority needs on an ongoing basis and integrate them into standards committee priorities. | Chair External Communications TG | ANS SC Policy drafted to specify this approach and approved by SB | 1/25/17: With no External TG Chair, there has been no action | 2/1/2017 | |
| D. Incorporate risk-informed and performance-based methods in ANS standards, where appropriate, by:<br>1. Develop the Risk-Informed Performance-Based Principles and Policy Committee Operating Plan<br>2. Develop a Risk-Informed Performance-Based Principles training package for training of ANS Standards Committee members.<br>3. Conduct training of consensus committees and working groups.<br>4. The RP3C will work with each consensus committee to develop a prioritized list and schedule for incorporating risk-informed and performance-based principles into its standards. Collaboratively, they will Identify and define any new standards that are related to risk-informed and performance-based principles. Some of such work may already have been assigned to other standards working groups, and so it is important to work with the SB and CCs to identify an appropriate WG lead (and CC) for | RP3C Chair | Provide draft of Risk-Informed Performance-Based Principles and Policy Committee Operating Plan for SB approval. | | 9/30/2017 | |
| | RP3C Chair | Resolution of SB comments and issue plan CC ballot | | 12/1/2017 | |
| | RP3C Chair | Develop priority list of standards and schedule for incorporation of RP3C principles | | 9/30/2017 | |
| | RP3C Chair | Nuclear News Article drafted, approved by SB Chair and forwarded to NN editor. | | 11/1/2017 | |
| | RP3C Chair | Develop Risk Informed and Performance Based Training Package for SC members and provide to SB for review. | | 12/1/2017 | |

**Comment [SLS1]:** Addresses EC comment 11.

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**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| the standards development with the objective of avoiding duplication. | RP3C Chair | Develop presentation package for use with other industry groups and submit to SB for approval. | | 3/1/2018 | |
| 5. Publishing a Nuclear News Article to inform other members of the Society of the benefits of this risk-informed and performance-based effort | | | | | |
| 6. Developing presentation materials that can be used to inform other industry groups as to the benefits and use of the ANS Standards Committee risk-informed and performance based standards activities | RP3C Chair | Contact appropriate organizations to make presentations at NRC RIC, ANS UWC and Owner's groups | | 7/1/2018 | |
| ~~6.~~7. 6.7. Produce at least three (3) standards containing risk-informed and/or performance-based requirements during the five-year plan period | RP3C Chair | Make presentations at a minimum of 2 groups | | 10/1/2018 | |
| | LLWR and RAR CC Chairs | LLWRCC to produce one risk informed and/or performance based standard<br>~~RARCC to produce at least two risk informed and or performance based standards~~ | | 1/30/2021 | |
| | | | | | |
| **Goal #2: Develop and Maintain High Quality Standards** | | | | | |
| A. Enhance the relationships with the ANS Professional Divisions and Technical Groups to assist in populating WGs with expert individuals. (also supports Goal 5) | Internal Communications TG Manager | Issue interface liaisons table between applicable divisions and group and the Standards consensus committees. | | 8/1/2016 | 6/1/2016 |
| | CC Chairs | Send requests for staffing assistance to ANS Professional Divisions and Technical Groups as needed. | | Ongoing | |
| | Internal Communications TG Manager | Tabulate the summary of the requests made and the results and present to Standards Board. | This item has been replaced by having the CC Chair report the results in their SB reports | NA | |
| B. Develop and Implement a standards training program for all Standards Committee members to ensure that standards development is consistent | Internal Communications TG Manager | Develop initial presentations and post on Workspace | | 3/1/2016 | 3/1/2016 |

**Comment [SLS1]:** Addresses EC comment 11.

**Comment [SLS2]:** Addresses EC comment 7.

## SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| with current policies and procedures, thus, producing consistently better quality products in a timelier manner. | SB VChair | Assign training instructors | | 3/1/2016 | 3/1/2016 |
| | SB VChair | Prepare Training Plan | | 2/1/2016 | 2/1/2016 |
| | Standards Mgr | Send out training notices | | 3/15/2016 | 3/15/2016 |
| | Standards Mgr | Complete the initial rounds of training presentations | | 6/2/2016 | 6/2/2016 |
| | SB VChair | Select videos for use in future training presentations | | 6/2/2016 | 6/2/2016 |
| C. Assign a mentor to each new standards working group that is experienced in the use of ANS standard's procedures, policies, glossary and tool kit | CC Chair | Evaluate SubC Chairs for familiarity with toolkit/standards development | Action Item 11/2016-21 was created at Stamm's suggestion for CC Chairs to speak/meet with their subcommittee chairs to ensure they are aware of toolkit/process. | 5/1/17 | |
| | CC Chair | Select SubC chairs and other CC members with respect to their being well versed in toolkit contents and capable of being mentors. Provide mentor list to SB VChair | | 5/1/17 | |
| | CC Chair | In cases, where additional assistance is required beyond the SubC Chair, CC should request mentor from SB VChair. | | Ongoing | |
| | | | | | |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| Goal #3: Improve Standards Development Production and Efficiency | | | | | |
| A. Expedite development of high-priority standards by improving Standards Board and consensus committee oversight using achievable project plans and definitive schedules with assigned milestones throughout the standards development cycle. | SB VChair | Draft Project Plan development policy | | 10/1/2016 | Approved by SB 9/6/16. Project plan w/b added to CC procedures as Appendix K. |
| | SB VChair | Project Plan development Policy approved by SB | | 12/1/2016 | |
| | CC Chairs | Develop Project Plans for 6 total standards from all CCs and submit to consensus committees | 1/25/17: Stamm clarified that this action is for a total of 6 project plans to be prepared by all CCs; not 6 by each CC. 3 plans have been developed to fdate. | 6/1/2017 | |
| B. Complete the Standards Volunteer Database to facilitate recruiting personnel for Standards Committee activities (also supports Goal #5) | ANS IT Dept. | ANS IT complete ANS SC Volunteer Data Base in accordance with the SB specification | | 11/1/2017 | |
| | ANS IT Dept. | SB Approves data base submitted by ANS IT department | | 2/1/2018 | |
| C. Assist the consensus committees in obtaining required human resources using outreach initiatives | Standards Mgr | Develop Staffing Approach guideline and post to website toolkit. | | 12/1/2016 | Completed by S. Stamm and posted to the toolkit on 8/22/16 here. |
| D. Maximize use of the ANS Standards Workspace and other communications vehicles to eliminate the need for travel and face-to-face meetings to the maximum extent possible | CC Chairs | Encourage WGs and SubCs to use workspace and other online and electronic tools to eliminate face-to-face meetings | Procedure issued to require use of Workspace for storage and activities. | Ongoing | April 2017 |
| | CC Chairs | CC chairs to submit a report regarding the reduction in face to face WG and SubC meetings. | 1/25/17: Stamm clarified that the report need only | 5/1/2017 | |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| | | | be a sentence or two. | | |
| E. Acquire funding (e.g., grants) to support the development of high-priority standards on an expedited basis. | CC Chairs/ Priority TG Chair | High priority standards list submitted by all CCs which Identifies high priority standards planned for near future. Priorities should be based on expected government need. | 1/25/17: Members recognized that the Priority TG Chair position was open and no action has been taken. | Ongoing | |
| | SB VChair | Work with CCs to assess each effort, select most appropriate standards, prepared and submit proposals. .Submit 1st proposal. | Nov 2017- Agreed to proactively coordinate with NRC and DOE for early identification of potential opportunities.. | 6/1/2017 Ongoing | |
| F. Streamline the reaffirmation process to reduce the number of delinquent standards by establishing a systematic review of delinquent standards to start no later than the 4-year mark. This can be accomplished through the following mechanisms:<br>1. Automatically sending out a Reaffirmation Form to the WG chair with copies to subcommittee chair and consensus committee chair<br>2. Automate subcommittee and consensus committee approvals of reaffirmation, withdrawal, and revision recommendations<br>3. Establishing an ANS Professional Division and Technical Group sponsorship program to aid in review of associated delinquent standards with and without active working groups | Standards Mgr | Submit Reaffirmation forms to WG/SubC chairs for all standards approaching the 4 year mark. | | Ongoing Starting 4/1/2016 | Ongpoing |
| | Standards Mgr | Issue list of all standards over 4 year since issuance showing the issuance of Reaffirmation Forms to the WG chairs. | | 11/1/2016 | Ongoing |
| | Standards Mgr | Action items for reaffirmation set up in Workspace with automatic reminders | | 11/1/2016 | The report was sent 9/15/16 and will be updated and resent 12/15/16 |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| | Internal Communications Group Manager | Send list of delinquent standards to PDs | | 12/1/2016 | Completed |
| | Internal Communications Group Manager | Issue plan and approach to each Professional Division and Technical Group as applicable and obtain indication of acceptance. | In process | 5/1/2017 | |
| G. Develop subcommittee/consensus committee metrics to identify opportunities for improvements | Policy TG Chair | Identify CC metrics, review with CC Chairs | | 10/1/2016 | Changed to done! |
| | CC Chairs | Each CC fill in annual tabulated metric performance | /25/17: Schroeder has completed the ESCC evaluation and will be starting on the evaluations for the balance of the CCs. | 5/1/2017 | 4/1/2017 |
| | Policy TG Chair | Evaluate metric results | | 3/1/2018 | |
| | CC Chair & Policy TG Chair | Provide recommendations for changes to improve performance | | 6/1/2018 | |
| | | | | | |
| Goal #4: Expand ANS Awareness and External Outreach | | | | | |
| A. Use periodic survey methods to gain feedback from industry, federal and state agencies; provide feedback to survey responders | SB VChair | Submit draft of survey comment responses to SB Chair for approval | | 8/1/2016 | 7/26/16 |
| | SB Chair | Send responses to commenters | | 10/1/2016 | Done |
| | SB Chair | Determine survey frequency for future ANS and | 1/25/17: Members | 10/1/2016 | |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| | | industry surveys. | recognized that the EC TG Chair position was open and no action has been taken. | | |
| B. Establish periodic leadership meetings with regulatory agencies, owner's groups and industry executives to align needs, and build support for development and greater use | Chair External Communications TG | Discuss communications approach with each of the applicable organizations (industry, federal and state agencies) | | Ongoing | |
| | Chair External Communications TG | Develop and issue master SC external communications plan | | 5/1/2017 | |
| C. Establish an ANS Professional Division sponsorship program to broaden input in setting standards priority | Chair Internal Communications TG | Issue plan and approach to each Professional Division and Technical Group as applicable and obtain indication of acceptance. | 1/25/17: A new action item was assigned for Stamm to confirm that a "Plan" was provided to liaisons. | 10/1/2016 | |
| D. Seek liaison arrangements with relevant SDOs, where needed, to improve efficiency, effectiveness and consistency of standards across the industry where overlapping or interlocutory standards arise | Chair External Communications TG | Prepare a liaison list identifying each desired liaison interface, the liaison approach and the implementation status. | 1/25/17: Members recognized that the EC TG Chair position was open and no action has been taken. | 10/1/2016 | 3/1/2017 |
| | Chair External Communications TG | Implement all liaisons on the Liaison Interface List. | 1/25/17: Members recognized that the EC TG Chair position was open and no action has been taken | 10/1/2016 | |
| E. Establish an approach to keep industry and trade groups advised of approved standards and in-progress standards in their areas of interest | Chair External Communications TG | Issue an Industry and Trade Group Interface Plan. | 1/25/17: Members recognized that the EC TG Chair position was open and no action has been taken. | 10/1/2016 | |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| | Chair External Communications TG | Complete plan implementation | | 6/1/2018 | |
| F. Identify key international organizations that can contribute to specific ANS standards development projects, including work group participation, review of draft standards, and providing input into standards prioritization. | Chair External Communications TG | Develop listing of key international organization, key contacts and the desired interfaces we would like to develop. | | 6/1/2017 | |
| | Chair External Communications TG | Send invitation letter to each of the interface contacts. Follow-up as needed | | 10/1/2017 | |
| | Chair External Communications TG | Provide completion report to SB. | | 10/1/2018 | |
| G. Establish a standards educational program for non-Standards Committee members to increase their knowledge of:<br>1. what consensus standards are, and are not;<br>2. benefit of consensus standards to the industry;<br>3. advantages to companies, federal and state agencies, and individuals of supporting standards development | Chair External Communications TG | Develop presentation package | | 6/1/2016 | 6/1/2016 |
| | Chair External Communications TG | Develop invitation list for indoctrination sessions | | 8/1/2016 | All ANS members |
| | Chair External Communications TG | Send indoctrination session invitations | | 10/1/2016 | sent via Jan 2017 N&D, member blast, and ANS home page. |
| | Chair External Communications TG | Conduct 1st indoctrination session | | 2/1/2017 | 1/31/2017 |
| | Chair External Communications TG | Complete sessions | | 11/1/2017 | |

**Comment [SLS1]:** Addresses EC comment 11.

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**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| H. Contact leading nuclear companies to determine if they issue regular newsletters and offer to provide standards updates for inclusion. | Chair External Communications TG | Develop list of companies and contacts | 1/25/17: Members recognized that the EC TG Chair position was open and no action has been taken. | 11/1/2016 | |
| | Chair External Communications TG | Develop short form newsletter. | 1/25/17: Members recognized that the EC TG Chair position was open and no action has been taken. | 11/1/2016 | |
| | Chair External Communications TG | Make contact with 30% and report to SB | 1/25/17: Members recognized that the EC TG Chair position was open and no action has been taken. | 4/1/2017 | |
| | Chair External Communications TG | Make contact with 100% and report to SB | | 11/1/2017 | |
| I. Evaluate the cost effectiveness of a fee based training program for newly issued/ revised standards. | SB VChair | Prepare draft evaluation plan | | 8/1/2016 | 7/26/2106 |
| | SB VChair | Meet with ANS Membership & Marketing Director and revise plan as appropriate. | | 8/3/2016 | Several calls held; last one on 10/5/16. |
| | SB VChair | Complete evaluation and send report to SB Chair for discussion with BOD. | | 3/1/2017 | Completed Jan 2017 – Recommended ANS-2.8 & ANS-3.5 once |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| | | | | | approved. |
| | | | | | |
| Goal #5: Improve Industry Representation and Sustainability of Working Groups, Subcommittees, and Consensus Committees | | | | | |
| A. Approach owners' groups and industry organizations soliciting member participation in ANS standards | Standards Mgr | Send Owners Groups semi-annual updates on applicable standards activities | Industry newsletter created and provided to Jim Riley as POC for utilities on 10/18/16. Industry newsletter posted here. | Ongoing | |
| | Standards Mgr | Request staffing assistance for select standards | An updated list of volunteer needs was prepared and posted to the ANS website 8-11/16, announced in Sept. 2016 N&D and distributed through ANS Collaborate to PDs. | Ongoing | |
| A. Send notices to ANS Student Section members, Young Member Group, Professional Division members, and North American-Young Generation Nuclear members to provide opportunities to participate in ANS standards | | | | | |
| | Standards Mgr | Send notices biannually | Broadcast sent to ANS Student Section 9/15/16. | Ongoing Biannually | |
| B. Enhance the relationships with the ANS Professional Divisions and Technical Groups to assist in populating WGs with expert individuals.(See Goal #1) | | .(See Goal #1) | | | |
| C. Advertise upcoming standards efforts with requests for support using *Nuclear News*, Nuclear Café, and ANS Linked-In Group | Standards Mgr | Advertise upcoming standards efforts with requests for support using *Nuclear News*, Nuclear Café, and ANS Linked-In Group | Volunteer needs section added to *Nuclear News*. List of volunteer needs updated and posted to web and announced in N&D. | Ongoing | |
| D. ANS IT Department to complete the Standards Volunteer Database, and make it available to subcommittee and consensus committee chairs (See Goal #3) | | (See Goal #3) | | | |
| E. Monitor consensus committee and working group | SB VChair | Develop standard report and provide to CC chairs. | 1/25/17: Stamm confirmed | 6/11/17 | 6/11/17 |

**Comment [SLS1]:** Addresses EC comment 11.

**SMART Matrix for ANS SC Strategic Plan – Updated 10/25/17 (EC Comment Incorporation & color update)**

| Initiative | Assigned Responsibility (Functional Title) | Specific Action Items Needed to Accomplish the Initiative | Status/ Comments | Scheduled Completion Date | Actual Completion Date |
|---|---|---|---|---|---|
| success in staffing and recruitment and share best practices across all consensus committees | | | that this action will be completed shortly. | | |
| | CC Chairs | Submit semi-annual report using format provided | | 10/1/2016+ To be implemented in 11/17 meeting | Ongoing |
| | SB VChair | Evaluate results of CC reports at SB meeting | | 6/30/2017+ Ongoing | |

**Comment [SLS1]:** Addresses EC comment 11.

American Nuclear Society
Standards Committee

555 North Kensington Avenue
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July 27, 2017

ANS Executive Committee
American Nuclear Society
555 N. Kensington Ave.
La Grange Park, IL 60526

Dear Executive Committee Members:

On behalf of the Standards Board, I would like to thank you for taking the time to review the Standards Committee Strategic Plan and offer your comments and suggestions. All of your comments were reviewed and discussed at the recent Standards Board meeting. A response has been provided to each comment on the attached table indicating the action to be taken.

Please feel free to contact me at mikeybrady@aol.com or 509-554-1167 should you have any questions or follow up comments on the responses.

Very truly yours,

Michaele Brady Raap

Michaele C. Brady Raap, Ph.D.
ANS Standards Board Chair

Attachment

CC: Standards Board

# Standards Board Reponses to ANS Executive Committee's Comments Dated May 18, 2017, Standards Committee Strategic Plan

| ANS Executive Committee Comment | Standards Board Response |
|---|---|
| 1) Overall this appears to be a well thought out and appropriate strategic plan! | Agreed, thank you. |
| 2) The Vision Statement should be revised to reflect that the ANS Standards Committee is "the leader" not "a leader" in developing standards for nuclear science and technology. | Requested change will be made. |
| 3) The Mission Statement should be revised to state "to develop and maintain high quality, consensus standards that continuously anticipate and meet the needs of the …" | Requested change will be made. |
| 4) The Mission Statement should be expanded to include "and to promote their broad acceptance, endorsement and use." | Requested change will be made. |
| 5) Goal #1, Initiatives A, B and C (evaluate the results from the initial industry standards priority survey and implement these priorities) need to be expanded to include DOE, regulator and other stakeholder priorities. It is good that the Standards Board is polling the industry, but they are not the drivers for all areas. | The survey included participants from all aspects of the nuclear industry including NRC and DOE. The term "industry" as used here was meant to include all stakeholders. This already includes feedback from NRC and DOE representatives. |
| 6) In Goal #1, Initiative D (incorporate risk-informed and performance-based methods), there is too much emphasis on performance-based methods and not enough emphasis on risk-informed methods. The industry is moving very quickly to implement a number of risk-informed initiatives (TSTF 505, 50.59, etc.) and this is a real opportunity for ANS to be a leader in providing standards for both the industry and the regulator. We need to focus on this and be proactive. | The focus equally included both risk-informed and performance-based methods. Work needs to be done in both of these areas to incorporate them into ANS standards. The goal for ANS standards to take a leadership role in these areas will be added to the plan. The application of risk-informed and/or performance-based requirements into standards will be determined on a case-by-case basis. |
| 7) Also related to Goal #1, ANS Position Statement #46 strongly encourages the implementation of Risk-Informed, Performance-Based regulations. The Executive Committee would like to see Initiative D be implemented as quickly as possible. | It is agreed that quick implementation is desirable. An initiative shall be added under Goal #1, Initiative D, to produce a number (to be determined based on further Standards Board review) of standards containing risk-informed and/or performance-based requirements during the five-year plan period. |
| 8) Goal #3, "Improved Standard Development Production and Efficiency", contains a good set of initiatives. However, they should also proactively focus on timely development of new standards to meet identified needs. A number of the initiatives have this focus (A, F and G), but this should be stressed even more. If we can be timelier, we can distinguish ourselves from other SDO's and gain market share. | The wording of the initiative will be revised to also include, "proactively focus on timely development of new standards to meet identified industry needs." An initiative to this effect will also be added. |
| 9) Goal #3 appears to only marginally encourage obtaining funds/grants to expedite high-priority standards. The decision-making process for selecting high-priority standards and for preparing grants to expedite their development is not clear. Perhaps outside the strategic plan, the Standards Board could work with ANS staff to develop a process for prioritizing the projects for which we should be seeking grants. | This was expanded a bit in the accompanying SMART matrix. NRC and DOE have indicated that grant proposals are only considered through response to open solicitation notices. The Standards Committee has regular discussions with NRC and DOE regarding potential grant funding opportunities and will respond to those applicable to ANS standards. |

| ANS Executive Committee Comment | Standards Board Response |
|---|---|
| 10) Goals #4 and #5 appear to be very close in content. To address this issue, we believe the fundamental objectives behind each of these goals should be better articulated or the two goals should be combined. | We will clarify/expand these goals and objectives so that the difference is clear. |
| 11) The SMART matrix is well done and appears to provide an excellent tool for tracking progress. Please be sure the "Specific Measurable Success Outcomes" are truly outcome oriented. There is a tendency when using SMART to make the outcomes more about making a presentation or updating a process, rather than seeing an actual improvement or other tangible result (more standards, better standards, more use of the standards, more revenue, etc.). We noticed this to some extent in the column in the matrix. | The title of the third column, "Specific Measurable Success Outcome," is not consistent with the contents of this column, which are the specific action items needed to accomplish the "Initiative." In many cases, a series of process steps are required in order to manage and demonstrate progress on reaching the initiative. The Standards Board is committed to improving the value of standards to ANS members and the U.S. nuclear industry. Metrics focused on the number of standards are not appropriate. |
| **The Executive Committee's comments on how the Standards Committee Strategic Plan relates to the ANS Strategic Plan and the State of the Society presentation are as follows.** | |
| 12) There should be linkage to the ANS Strategic Plan in some way and greater consistency between the Standards Committee Strategic Plan and the standards section of the ANS Strategic Plan. In the ANS Strategic Plan, Mission Component 2, Goal 3 that discusses producing and maintaining ANS consensus standards, the goals and strategies are not at all consistent with the Standards Committee Strategic Plan. Although, in most cases, we think that the Standards Committee Strategic Plan goals and strategies are better, if we are going to manage to either of these plans, we need them to be consistent. All of the Standards Committee's goals can be linked to ANS Strategic Plan, Mission Component 2, Goal 3, but some of them could also be linked to ANS Mission Component 1, Goal 1 and Mission Component 4, Goal 2. | It is important that the Standards Board as well as other ANS standing committees review the ANS Strategic Plan and evaluate their organizations with respect to its implementation. The ANS Standards Committee Strategic Plan does implement many facets of the ANS Strategic Plan, including many that are not specific to ANS standards. The best approach to this would be to do so in a separate document that included the above-mentioned evaluation. We suggest that the ANS Executive Committee request all ANS standing committees perform this separate evaluation on the current ANS Strategic Plan and then revise their Plans as necessary based on the updated ANS Strategic Plan. The ANS Strategic Plan is five years old and should be evaluated for a probable update. |
| 13) With respect to the State of the Society presentation, the Standards Committee already does a good job engaging the membership and creating value. However, if the Committee can focus on improving our member value and market share compared to other SDO's (see comment 5 above) that would go a long way to being even more effective. | The Standards Committee Strategic Plan is heavily focused on engaging membership and creating new members. First, we have used and will continue to use member surveys to identify members' standards needs and to structure our work accordingly. In addition, we have developed an interface protocol with the ANS professional divisions to foster two-way communications related to technical needs. We feel these are two primary means of engaging our members and adding value to the process that have been effective. We will, however, continue to interact with the industry to identify other means of improving our market share. |

# Secretary/Staff Report
## 2017 ANS Winter Meeting

Consensus Committee Member Participation Reports

The ANS Standards Board developed metrics in 2016 to measure the performance of consensus committees to achieve goals set as part of the Standards Committee Strategic Plan. Metrics tracked include meeting and ballot participation as well as several other items. A member participation report was prepared for each consensus committee for member review at their next consensus committee meeting or teleconference. Committee member feedback on member participation will be used by the consensus committee chair to determine the appropriate action.

Standards Committee Associate Member Program/Engagement of Young Professionals

The Standards Committee Associate Member Program was created in 2007 at the suggestion of the ANS Young Member Group (YMG). Communications have been sent to the YMG, the ANS Student Section, and the North American Young Generation Nuclear (NAYGN) over the years. A broadcast was sent directly by Piyush Sabharwall, the current YMG Chair, to the YMG in August of this year reminding young members of the opportunities within the Standards Committee. Two responses were received of which only one completed the ANS Standards Committee Volunteer Form. This individual was placed on the JCNRM's Low Power/Shutdown Writing Team. Two attempts to reach out to the NAYGN have been made without response. Brett Rampal, past YMG Chair, offered his assistance to reach NAYGN leadership. A third attempt with Rampal's help will be made after the winter meeting.

Presently, the ANS Standards Committee has placed 43 young professionals on a standards committee; 35 of which remain current. Placement is pending for an additional two, both with interest in nuclear criticality safety standards. ANS Subcommittee Chair Doug Bowen plans to use the Nuclear Criticality Safety Standards Forum during the upcoming winter meeting to find a placement for these individuals. Many of the young professionals that joined the Standards Committee as an associate member have proven themselves to be of great benefit; several are now full voting members.

Maintenance of Standards

The two-fold effort to reduce the number of delinquent standards initiated in 2016 continues to to be very successful. The new effort includes a reaffirmation form with criteria to aid in determining if a standard is appropriate for reaffirmation and a delinquent standards report updated and distributed quarterly. Twenty standards were reaffirmed in 2016. This represents a 400% increase for 2016 from the average of five standards reaffirmed a year (~previous five years). An additional 14 standards are expected to be reaffirmed before the end of 2017. The increase in reaffirmations significantly reduces the number of delinquent standards from 22 (2015), to 15 (2016), and further down to 10 (2017). Nearly half of the 80 current standards have been either reaffirmed or approved (as new or revised standards) in the last two years. All but three of the remaining delinquent standards are either in the process of being revised or have been issued for ballot (either reaffirmation or revision). Of these remaining three, two of the standards do not have active working groups. The Standards Committee called upon the ANS Professional Divisions for help reviewing these standards to determine if they remain valid and should be reaffirmed. Lastly, a decision has been made to allow one of the delinquent standards to be administratively withdrawn. A revision of this standard will be initiated once technology stabilizes.

| Year | # of Current Standards at Close of Year | # of Standards Reaffirmed | # of Delinquent Standards | % of Delinquent Standards |
|---|---|---|---|---|
| 2014 | 78 | 2 | 33 | 42.3% |
| 2015 | 80 | 6 | 25 | 31.3% |
| 2016 | 81 | 20 | 19 | 23.4% |
| 2017 | 80 | 14* | 10 | 12.5% |

**Includes 4 reaffirmations in process.*

Partnering the ANS Store with Techstreet

Standards revenue generated through the ANS Store has been flat for the last five plus years. ANS will likely see just over $50,000 in gross standards sales through the store in 2017, similar to previous years. ANS staff has been looking for more than a year at options to partner our store with another organization. In addition to Techstreet, a conversation was held with ASTM International. The discussion with ASTM International focused on their product ASTM Compass, which would require a royalty cut of 50% to ASTM for this service. Options to partner the standards portion of the ANS Store with Techstreet continue to be considered as a way to bring enhancements to our store with the potential of increasing sales. The royalty share to Techstreet for its services would be 20% of gross sales through the joint store. The contract would be nonexclusive and potentially as short as 18 months. Presently, IT specialists from Techstreet and ANS are discussing the logistics of creating the partnered store.

Partnering with Techstreet has many features that have the potential to increase our revenue and reduce our expenses including:

- Multi-user PDF option
- Combination print-plus-PDF to increase the point of sale
- Redlines showing changes in a standard from the previous version
- Secure PDF (using the FileOpen digital rights management (DRM))
- Print using Techstreet's high quality print-on-demand to eliminate all printing and fulfillment costs
- Reduction of many operating costs for the ANS store including credit card fees and customer service, which would be absorbed by Techstreet
- Collection of user information for marketing purposes (option for users to select "Track It" builds customer data)
- Ability to sell aligned standards from ISO and other organizations to generate incremental revenues (5%)

The options of multi-user PDF, redlines, and print plus (offers a print version w/a PDF version at a reduce cost to increase the sale) are new products to increase revenue. The addition of DRM is becoming more and more important as users move from print to PDF format. Without DRM, our standards are easily duplicated by sending to others via email or sharing on a network site. As an alternate, we have explored a subscription service for ANS to embed DRM protection ourselves. The initial annual subscription is estimated at $6000, which would increase to $7500 or more annually as the number of customers using the product increased over time. In addition to the annual expenditure for the software, use of DRM software would require a significant staff effort, initially to add the software to nearly 200 standards products as well as to provide support to customers that have difficulty with the software.

Feedback from Standards Board past and present leadership has been less than positive on encouraging the sale of other developers' standards (i.e., ISO, ASTM, ASME, IEEE, etc.) due to concern that the customer may elect to purchase the standards from the other organizations instead of ours.

Rough financials with a number of assumptions are provided below:

| **Techstreet Partnered Store Financials<br>Two-Year Projections** | | | |
|---|---|---|---|
| | Current financials w/ANS hosting DRM | Partnered Store financials (with 10% sales growth in 1st year | Partnered Store financials (with 10% sales growth in 2nd year |
| Print Sales (40%) | $20,000 | $22,000 | $24,200 |
| PDF Sales (60%) | $30,000 | $33,000 | $36,300 |
| Royalty Increase from existing Techstreet.com contract revision | | $1,670 | $1,670 |
| **Total Revenue** | **$50,000** | **$56,670** | **$62,170** |
| **Costs** | | | |
| Printing Costs (.55/unit) | ($100) | | |
| Credit Card Fees | ($1,500) | | |
| Fulfillment | ($540) | | |
| DRM | ($6,000) | | |
| Administrative | ($3,000) | | |
| Techstreet Cut (20% of Print/PDF) | | ($11,000) | ($12,100) |
| **Net Profit** | **$38,860** | **$45,670** | **$50,070** |

**Techstreet currently sells ANS standards with 60% of the revenue paid to ANS. This split would be increased to 80% in the partnered store.*

Some information about Techstreet….Techstreet launched the first-ever website for searching and ordering industry codes and standards in 1996. In 1998, Techstreet become the first standards provider to offer documents in downloadable PDF format. Techstreet was bought by the Thomson Corporation in 2003, and is currently part of Clarivate Analytics, formerly the Intellectual Property & Science Business of Thomson Reuters. The history of Thomson Reuters dates back to 1850. Clarivate Analytics specializes in providing content and tools to help customers drive innovation, protect their intellectual assets, and maximize the value of their intellectual property.

Workspace Usage Stats

The ANS Standards Workspace ("Workspace") was launched in 2014. Workspace currently includes 173 active groups, 740 active user accounts, and 3468 documents posted. The site

has been used to send 2939 email messages, post 192 events and 437 action items, and issue 548 ballots. In an effort to increase working group use of Workspace, subcommittee, consensus committee, and Standard Board comments are provided to working groups through their individual workspace. Committee ballot usage for the last three years is as follows:

| **Committee** | **2015** | **2016** | **2017** |
|---|---|---|---|
| Standards Board | 25 | 64 | 40 |
| ESCC | 11 | 25 | 23 |
| FWDCC | 3 | 17 | 12 |
| LLWRCC | 13 | 17 | 13 |
| NCSCC | 6 | 10 | 14 |
| NRNFCC | 5 | 4 | 2 |
| RARCC | 6 | 14 | 4 |
| SRACC | 5 | 14 | 10 |

ANS Style Manual in Development

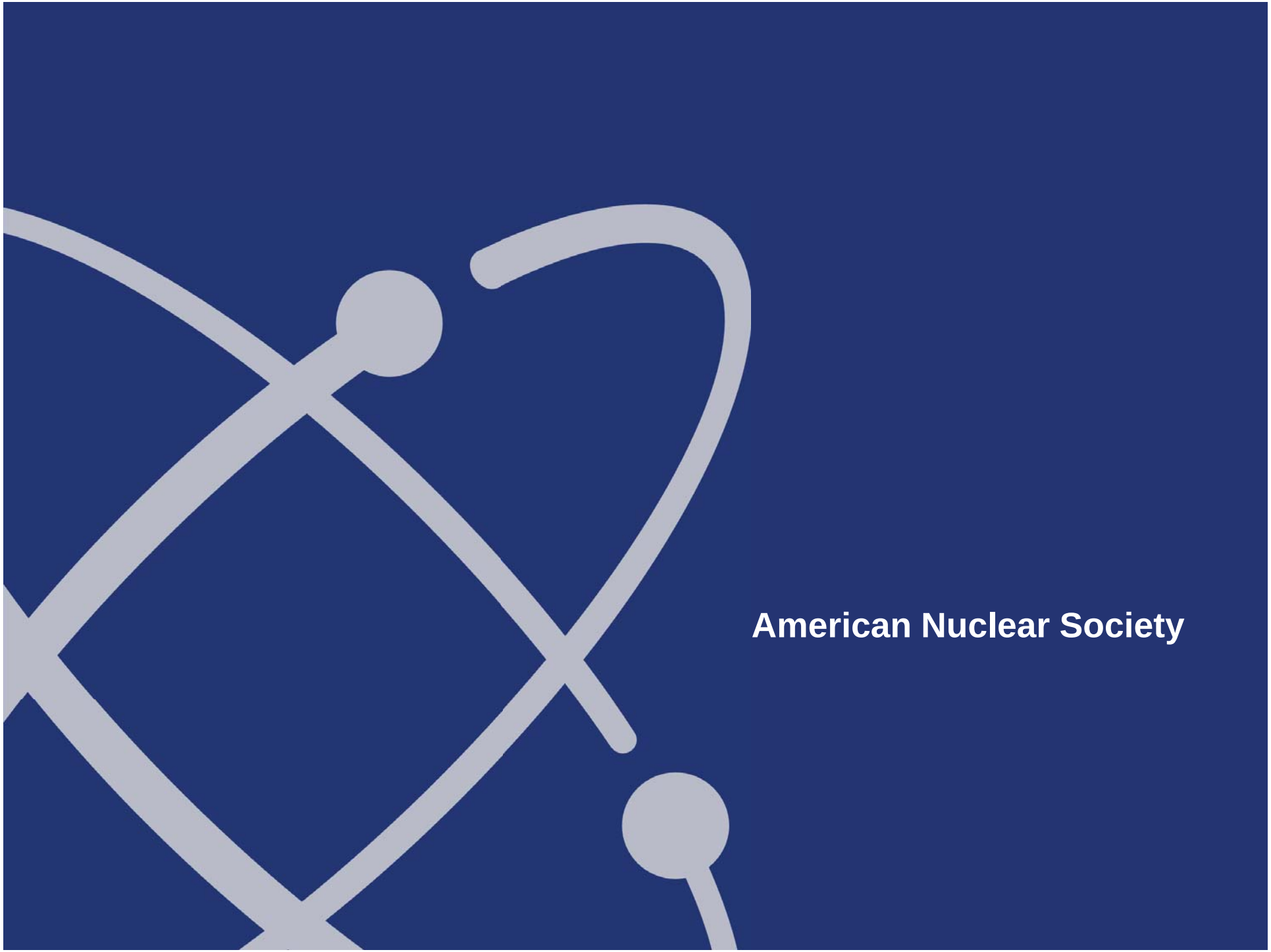
Work continues, although slowly, on development of an ANS Style Manual for working group use. ANS standards committees have been referring to the ANSI Style Manual since its publication in 1991. ANSI no longer maintains their style manual and has moved to a style guide sheet with minimal guidance. The ANS Style Manual will incorporate guidance from the ANSI Style Manual that remains relevant and include format information specific to ANS. The ANS Style Guide is expected to be completed in early 2018.

# Standards Sales Report

## May 16 - October 13, 2017

| Designation & Title of Standard | # Sold | Total |
|---|---|---|
| Materials | 1 | $256.00 |
| ANSI/ANS/HPSSC-6.8.1-1981;W1991: Location and Design Criteria for Area Radiation Monitoring Systems for Light Water Nuclear Reactors | 2 | $154.00 |
| ANSI/ANS-10.4-2008; R2016: Verification and Validation of Non-Safety-Related Scientific and Engineering Computer Programs for the Nuclear Industry | 1 | $143.00 |
| ANSI/ANS-10.5-2006;R2016: Accommodating User Needs in Scientific and Engineering Computer Software Development | 1 | $62.00 |
| ANSI/ANS-15.11-1993;R2004;W2009: Radiation Protection at Research Reactor Facilities | 1 | $133.00 |
| ANSI/ANS-15.1-2007;R2013: The Development of Technical Specifications for Research Reactors | 1 | $94.50 |
| ANSI/ANS-15.21-2012: Format and Content for Safety Analysis Reports for Research Reactors | 1 | $136.00 |
| ANSI/ANS-15.2-1999;R2009;R2016: Quality Control for Plate-Type Uranium-Aluminum Fuel Elements | 1 | $70.00 |
| ANSI/ANS-15.4-2007;W2016: Selection and Training of Personnel for Research Reactors | 1 | $77.00 |
| ANSI/ANS-15.4-2016: Selection and Training of Personnel for Research Reactors | 1 | $103.00 |
| ANSI/ANS-16.1-2003; R2008; R2017: Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure | 5 | $745.00 |
| ANSI/ANS-18.1-2016: Radioactive Source Term for Normal Operation of Light Water Reactors | 4 | $436.80 |
| ANSI/ANS-19.10-2009; R2016: Methods for Determining Neutron Fluence in BWR and PWR Pressure Vessel and Reactor Internals | 1 | $59.00 |
| ANSI/ANS-19.11-1997;R2002;R2011;W2017 (R=Reaffirmation, W=Withdrawn): Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Water Moderated Power | 1 | $105.00 |
| ANSI/ANS-19.11-2017: Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors | 1 | $128.00 |
| ANSI/ANS-19.3.4-2002;R2008;2017: The Determination of Thermal Energy Deposition Rates in Nuclear Reactors | 1 | $62.00 |
| ANSI/ANS-19.3-2011; R2017: Steady-State Neutronics Methods for Power Reactor Analysis | 1 | $141.00 |
| ANSI/ANS-19.6.1-2011; R2016: Reload Startup Physics Tests for Pressurized Water Reactors | 1 | $133.00 |
| ANSI/ANS-2.17-2010; R2016: Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Plants | 2 | $304.00 |
| ANSI/ANS-2.21-2012; R2016: Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink | 1 | $61.00 |
| ANSI/ANS-2.2-2016, Earthquake Instrumentation Criteria for Nuclear Power Plants | 1 | $155.00 |
| ANSI/ANS-2.23-2016: Nuclear Power Plant Response to an Earthquake | 1 | $180.00 |
| ANSI/ANS-2.26-2004;R2010;R2017: Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design | 5 | $641.90 |
| ANSI/ANS-2.29-2008; R2016: Probabilistic Seismic Hazard Analysis | 2 | $304.00 |
| ANSI/ANS-2.3-2011; R2016: Estimating Tornado, Hurricane, and Extreme Straight Line Wind Characteristics at Nuclear Facility Sites | 1 | $77.00 |
| ANSI/ANS-3.11-2015: Determining Meteorological Information at Nuclear Facilities | 3 | $726.00 |
| ANSI/ANS-3.1-2014, Selection, Qualification, and Training of Personnel for Nuclear Power Plants | 4 | $535.80 |
| ANSI/ANS-3.2-2012; R2017: Managerial, Administrative, and Quality Assurance Controls for the Operational Phase of Nuclear Power Plants | 2 | $262.20 |
| ANSI/ANS-3.4-1996;R2002;W2012: Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants | 1 | $62.00 |
| ANSI/ANS-40.37-2009; R2016: Mobile Low-Level Radioactive Waste Processing Systems | 2 | $305.90 |
| ANSI/ANS-41.5-2012: Verification and Validation of Radiological Data for Use in Waste Management and Environmental Remediation | 2 | $354.00 |
| ANSI/ANS-5.10-1998;R2006;R2013: Airborne Release Fractions at Non-Reactor Nuclear Facilities | 1 | $145.00 |
| ANSI/ANS-5.1-2005;W2014: Decay Heat Power in Light Water Reactors (with erratum) | 1 | $167.00 |
| ANSI/ANS-5.1-2014, Decay Heat Power in Light Water Reactors | 2 | $349.60 |
| ANSI/ANS-51.1-1983;R1988;W1998: Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants | 1 | $207.90 |

| Standards Sales Report | | |
|---|---|---|
| **May 16 - October 13, 2017** | | |
| **Designation & Title of Standard** | **# Sold** | **Total** |
| ANSI/ANS-53.1-2011; R2016: Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants | 2 | $512.00 |
| ANSI/ANS-54.8-1988;W1998: Liquid Metal Fire Protection in LMR Plants | 1 | $86.00 |
| ANSI/ANS-56.8-2002;R2016: Containment System Leakage Testing Requirements | 1 | $149.00 |
| ANSI/ANS-57.2-1983;W1993: Design Requirements for Light Water Reactor Spent Fuel Storage Facilities at Nuclear Power Plants | 1 | $124.20 |
| ANSI/ANS-57.7-1988;R1997;W2007: Design Criteria for an Independent Spent Fuel Storage Installation (Water Pool Type) | 1 | $164.00 |
| ANSI/ANS-57.8-1995;R2005;R2011;R2017: Fuel Assembly Identification | 1 | $52.00 |
| Reactors | 1 | $213.00 |
| ANSI/ANS-58.8-1994;R2001;R2008;R2017: Time Response Design Criteria for Safety-Related Operator Actions | 1 | $96.00 |
| ANSI/ANS-58.9-2002;R2015: Single Failure Criteria for LWR Safety-Related Fluid Systems | 1 | $52.00 |
| ANSI/ANS-59.51-1997;R2015: Fuel Oil Systems for Safety-Related Emergency Diesel Generators | 1 | $86.00 |
| ANSI/ANS-6.1.2-2013: Group-Averaged Neutron and Gamma-Ray Cross Sections for Radiation Protection and Shielding Calculations for Nuclear Power Plants | 1 | $61.00 |
| ANSI/ANS-6.4.2-2006; R2016: Specification for Radiation Shielding Materials | 4 | $326.80 |
| ANSI/ANS-6.4-1997;R2004;W2006: Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants | 2 | $434.00 |
| ANSI/ANS-6.4-2006; R2016: Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants | 5 | $1,145.00 |
| ANSI/ANS-8.1-2014, Nuclear Criticality Safety in Operations with Fissionable Material Outside Reactors | 29 | $2,336.25 |
| ANSI/ANS-8.12-1987;R1993;R2002;R2011;R2016: Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors | 1 | $105.00 |
| Reactors | 2 | $104.00 |
| ANSI/ANS-8.15-2014, Nuclear Criticality Safety Control of Selected Actinide Nuclides | 2 | $242.00 |
| ANSI/ANS-8.17-1984;R1997;W2004: Criticality Safety Criteria for the Handling, Storage and Transportation of LWR Fuel Outside Reactors | 1 | $39.60 |
| ANSI/ANS-8.17-2004;R2009;R2014: Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors | 2 | $98.80 |
| ANSI/ANS-8.19-2014: Administrative Practices for Nuclear Criticality Safety | 16 | $700.00 |
| Reactors | 1 | $46.80 |
| ANSI/ANS-8.22-1997;R2006;R2011; R2016: Nuclear Criticality Safety Based on Limiting and Controlling Moderators | 1 | $62.00 |
| ANSI/ANS-8.24-2007;R2012: Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations | 10 | $907.50 |
| ANSI/ANS-8.26-2007;R2016: Criticality Safety Engineer Training and Qualification Program | 3 | $127.60 |
| ANSI/ANS-8.27-2015: Burnup Credit for LWR Fuel | 3 | $298.70 |
| ANSI/ANS-8.3-1997;R2003;R2012: Criticality Accident Alarm System | 1 | $100.80 |
| ANSI/ANS-8.5-1996;R2002;R2007;R2012: Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material | 2 | $133.00 |
| ANSI/ANS-8.7-1998;R2007;R2012: Nuclear Criticality Safety in the Storage of Fissile Materials | 1 | $96.00 |
| 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) | 2 | $440.00 |
| ASME/ANS RA-S-1.3-2017: Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications | 4 | $858.00 |
| ASME/ANS RA-S-1.4-2013: Probabilistic Risk Assessment Standard for Advanced Non-LWR Nuclear Power Plants | 2 | $1,100.00 |
| **Total Sales** | | **$19,173.65** |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# ANS Initiatives for Risk-informed Performance-based Standards

**Presentation to**

**NRC Standards Forum**

**N. Prasad Kadambi, Chair**

**Risk-informed Performance-based Principles and Policy Committee (RP3C)**

**September 26, 2017**

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# ANS and Standards Modernization

- ANS advocates risk-informed and/or performance-based (RIPB) approaches for economic deployment of nuclear technology (PS-46).
- We are cognizant of operating reactor priorities and the opportunities to meet advanced reactor needs.
- Each ANS consensus committee (CC) is engaged in supporting existing facilities while also upgrading the methods used.
- JCNRM (ANS+ASME) produces probabilistic risk assessment (PRA) standards that are available for all (i.e., industry, other SDOs).
- Timely development and deployment of advanced reactors would greatly benefit from better standards from all SDOs.

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# RP3C Operating Plan

- ANS Standards Board chartered Risk-informed Performance-based Principles and Policy Committee (RP3C) to facilitate development of RIPB standards for current and new technology reactors.
- RP3C has a set of by-laws that make it responsible for implementing principles and policies but not developing standards.
- We have a plan that targets developing guidance for CCs and working groups (WGs), offering training, interfacing internally and externally, and self-assessing for effectiveness.
- Three important parts of the plan are
  - Review ANS standards, current and historic, to find useful information for needs of advanced reactors
  - Develop guidance for making standards more RIPB
  - Apply and refine guidance by working on pilot projects

# ANS Standards Evaluation Status

- Preliminary Screening:
  - RIPB – xx
  - RI – xy
  - PB – xz
  - Leave as is – aa
- Used for Advanced Reactor development:
  - Near term –
  - Mid term –
  - Long term –

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# Outlines of RIPB Guidance

- Clarify RIPB principles to enable desired outcomes
  - Graded approach to safety
  - Avoid criteria that do not benefit safety (lower risk)
- Screening procedure for WGs to identify whether, when, where, and how risk-informed and/or performance-based principles are best applied
  - Explore alternatives to conserve resources
- Define major steps toward achieving outcomes, including identifying lower level supporting outcomes
- Produce and archive documentation to enable knowledge management and transfer

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# Pilot Projects Supporting Guidance Development

- Two pilots have been identified.
  - ANS-30.2 is a proposed standard for establishing performance requirements for structures, systems, and components on a technology-independent basis.
  - ANS-3.14 is a proposed standard for nonreactor facilities on ageing management and life extension.
- Standards need to capture and effectively use best practices.
  - ANS-30.2 will use most recent non-light water reactor work.
  - ANS-3.14 will use risk concepts not based on PRA.
- Interaction with the WGs is just beginning.
- RP3C faces challenge developing guidance at the right level for experts in widely varying fields.

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# Closing Comments

- The wide variety of technical expertise needed for nuclear safety modernization requires participation by all SDOs.
- RP3C is very much interested in knowing how other SDOs are employing outcome-oriented and probabilistic concepts in their standards development.
- NRC can offer a vital convening role to facilitate safety outcomes from all SDO products that meet principles of good regulation and avoidance of unnecessary burden.
- We would like to help in achieving industry's needs by more effectively using our extensive liaisons including with other SDOs.

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# Progress on ANS Areas of Interest

**By George Flanagan**

**Past Chairman of the ANS Standards Board**

**Chairman of the Research and Advanced Reactor Consensus Committee**

**Presented to:**

**NRC Standards Forum**

**September 26, 2017**

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# Agenda

- Progress on the five areas on interest of ANS from the 2016 Standards Forum
  - Design Standards for High Temperature Gas Reactors
  - Design Standards for Liquid Metal Reactors (including Sodium Fluoride Reactors)
  - Methodology for Risk-Informed Strategies
  - Reactor Coolant Radiological Source Terms for Normal Operation
  - Emergency Planning Zone (EPZ) Size Evaluation

# ANS Areas of Interest—Progress

- ANSI/ANS-53.1-2011 (R2016), “Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants” (current standard)
  - Reaffirmed 2016 (reapproved/no changes)
- ANS-54.1, “Nuclear Safety Criteria and Design Process for Sodium Fast Reactor Nuclear Power Plants” (historical revision of ANS-54.1-1989)
  - Draft standard reflects information in DG 1330-SFR DC plus risk-informed approach similar to that proposed in the joint DOE/Utility Licensing Framework Modernization Project currently underway.
  - Draft standard has been reviewed by subcommittee and is being submitted for RARCC ballot.

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# Other Advanced Reactor Standards in Development by ANS

- ANS has four additional standards on advanced reactors in development. Details of these standards will be discussed in this afternoon's session on advanced reactor standards.
  - ANS-20.1, "Nuclear Safety Design Criteria for Fluoride Salt-Cooled High-Temperature Reactor Nuclear Power Plants" (new standard under development)
  - ANS-20.2, "Nuclear Safety Design Criteria and Functional Performance Requirements for Liquid-Fuel Molten-Salt Reactor Nuclear Power Plants" (new standard under development)
  - ANS-30.1, "Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs" (new standard under development)
  - ANS-30.2, "Categorization and Classification of Structures, Systems, and Components for New Nuclear Power Plants" (new standard under development)

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# ANS Areas of Interest—Progress (Cont'd)

- Methodology for Risk-Informed Strategies
  - This will be discussed by Prasad Kadambi in this afternoon's session on advanced reactor standards.
- Reactor Coolant Radiological Source Terms for Normal Operation
  - ANSI/ANS-18.1-2016 approved in 2016 (minor revision of ANSI/ANS-18.1-1999; W2009).
  - EPRI published a technical report: "Reactor Coolant Radiological Source Terms for Normal Operation-Public Version: Technical Bases for Updating the ANSI/ANS-18.1-1999 Standard to Incorporate Contemporary Best-Estimate Radiological Source Terms in Principal Fluid Streams of Light Water Reactors"
  - ANS-18.1 Working Group considering revisions to ANSI/ANS-18.1-2016.

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# ANS Areas of Interest—Progress (Cont'd)

- EPZ Size Evaluation small modular reactors
  - Being considered for a new standard based on NRC's ongoing activities on dose-based EPZ
  - Feedback requested

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# Update of ANS Advanced Reactor Standards

**By George Flanagan**

**Past Chairman of the ANS Standards Board**

**Chairman of the Research and Advanced Reactor Consensus Committee**

**Presented to:**

**NRC Standards Forum**

**September 26, 2017**

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# Agenda

- ANS Committee Structure
- Research & Advanced Reactors Consensus Committee
- Status of ANS Advanced Reactor Standards
- Proposal

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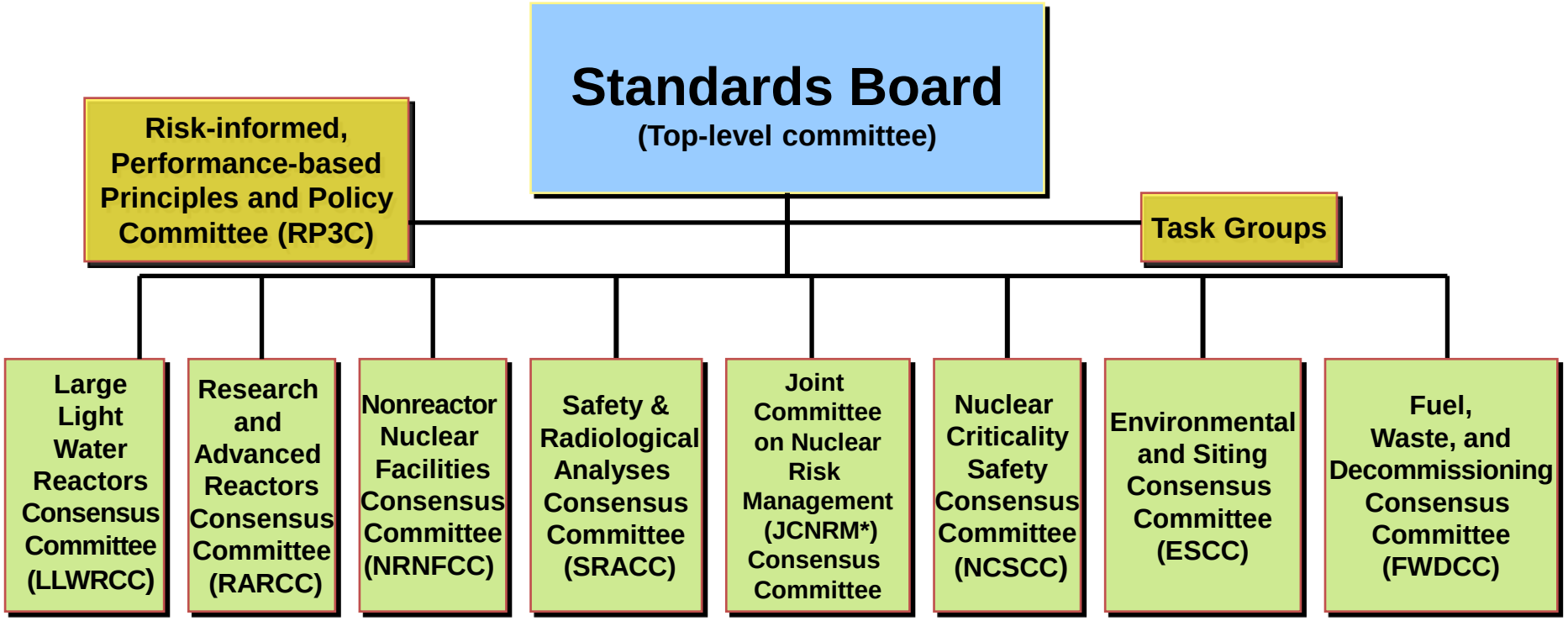
# The ANS Standards Committee




*The JCNRM is a joint ANS and ASME committee.

# Research and Advanced Reactors Consensus Committee (RARCC)

George F. Flanagan (Chair), ORNL

*Scope:*

*The RARCC is responsible for the preparation and maintenance of voluntary consensus standards for the design, operation, maintenance, operator selection and training, and quality requirements for current and future research and test reactors including pulsed critical facilities, reactors used for the production of isotopes for industrial, educational, and medical purposes and current and advanced non-large LWRs. The scope includes but is not limited to: water-cooled and non-water cooled Small Modular Reactors, Generation III+ and IV reactors, and future non-light water cooled/moderated large commercial reactors.*

*The RARCC standards include but are not limited to the design and operation of the nuclear island, the balance of plant, and other systems within the plant boundary affecting safety and operations.*

# ANS Advanced Reactor Standards

- Standards discussed during morning session
  - ANSI/ANS-53.1-2011 (R2016), “Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants” (current standard)
  - ANS-54.1, “Nuclear Safety Criteria and Design Process for Sodium Fast Reactor Nuclear Power Plants” (historical revision of ANS-54.1-1989)

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# ANS Advanced Reactor Standards (Cont'd)

- ANS-20.1, "Nuclear Safety Design Criteria for Fluoride Salt-Cooled High-Temperature Reactor Nuclear Power Plants" (new standard under development)
- ANS-20.2, "Nuclear Safety Design Criteria and Functional Performance Requirements for Liquid-Fuel Molten-Salt Reactor Nuclear Power Plants" (new standard under development)
- ANS-30.1, "Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs" (new standard under development)
- ANS-30.2, "Categorization and Classification of Structures, Systems, and Components for New Nuclear Power Plants" (new standard under development)
  - Awaiting results from joint DOE/Utility Licensing Framework Modernization Project

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# ANS Proposal for Coalition of the Willing

- ANS volunteers to take the lead to host a workshop to discuss advanced reactor standards development
  - Purpose: Develop a strategic vision for advanced reactors standards development
  - Attendees from SDOs, industry (including NEI and EPRI), NRC, and DOE
  - Located in the D.C. area to support attendance by NRC and DOE, early 2018
  - Suggested time and location to be determined
    - Possible locations
    - RIC
    - DOE
    - NRC
    - NEI
  - Results from the DOE-sponsored work to identify and rank the gaps in SFR standards might serve as a strawman (results reported in the afternoon session of this forum) along with information generated by the joint DOE/Industry Advanced Reactor Licensing Modernization Framework Program

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# American Nuclear Society Professional Divisions(PD)/Standards Committee (SC) Liaisons Interface Plan

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# Agenda

- Goals
- Objectives
- Definitions PD and SC Liaisons
- List of Liaisons
- Expectations
- Proposed Interface Improvements

# Professional Division / Standards Committee Liaisons Program

- **Goals**
  - To reestablish and improve the interaction between the ANS Standards Committee (SC) and the Professional Divisions (PD) by reinforcing this topic in each meeting, by having a standing topic on each other's agenda, and by trying to support each other more effectively with our limited resources
- **Objectives**
  - To establish synergy between ANS members through PD liaisons to standards consensus committees and vice versa
    - 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 experts (SMEs)
    - 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
    - Also consider any delinquent standards that should be updated

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# PD/SC Liaisons Personnel List

| ANS Professional Division | Name of PD Proposed Liaison | Email of PD Liaison | Associated Consensus Committee (see next slide)* | Name of ANS Standards Committee Proposed Liaison and Subcommittee | Email of ANS Standards Comm. Liaison or Interface |
|---|---|---|---|---|---|
| Accelerator Applications | James Stubbins | jstubbin@illinois.edu | NRNFCC | Jeffery R. Brault | jeff_brault@yahoo.com |
| Aerospace Nuclear Science & Technology | John Bess | John.bess@inl.gov | ** | Jeffery R. Brault | jeff_brault@yahoo.com |
| Biology & Medicine | Bryan Bednarz | bbednarz2@wisc.edu | ESCC/ ANS-3.4 | Carl Mazzola | cmazzola@projectenhancement.com |
| Decommissioning & Environmental Sciences | Jay Peters | JPeters@haleyaldrich.com | FWDCC/ESCC | Carl Mazzola | cmazzola@projectenhancement.com |
| Education, Training, & Workspace Development | Marsha Bala | Marsha.bala@inl.gov | LLWRCC | Bob Busch | busch@unm.edu |
| Fuel Cycle & Waste Management | Jeffery R. Brault | jeff_brault@yahoo.com | FWDCC | Jeffrey R. Brault | jeff_brault@yahoo.com |
| Fusion Energy | Susana Reyes | reyes20@llnl.gov | RARCC | George Flannagan | flanagangf@ornl.gov |
| Human Factors, Instrumentation & Controls | Sean Smith | sean.smith.eng@gmail.com | LLWRCC | Pranab K. Guha | pranab.guha@hq.doe.gov |
| Isotopes & Radiation | Lei Cao | cao.152@osu.edu | SRACC | Charlotta Sanders | sander59@unlv.nevada.edu |
| Materials Science & Technology | Micah Hackett | mhackett@terrapower.com | ** | | |
| Mathematics & Computation | Paul Hulse | paul.hulse@sellafieldsites.com | SRACC | | |
| Nuclear Criticality Safety | Sedat Goluoglu | goluoglu@mse.ufl.edu | NCSCC | Doug Bowen | bowendg@ornl.gov |
| Nuclear Installations Safety | Susan Pickering | sypicke@sandia.gov | RARCC/NRNRCC | Don Eggett | don.eggett@gmail.com |
| Nuclear Nonproliferation Policy | Margaret Harding | margaret@4factorconsulting.com | ANS-60.1 | NA | |
| Operations & Power | Thomas Remick | thomas.remick@aps.com | LLWRCC | Charles K. Brown | ckbrown@southernco.com |
| Radiation Protection & Shielding | Michele Sutton Ferenci | mferenci@hmc.psu.edu | SRACC | Charlotta Sanders | sander59@unlv.nevada.edu |
| Reactor Physics | Pavel Tsvetkov | tsvetkov@tamu.edu | SRACC | Dimitrios Cokinos | cokinos@bnl.gov |
| Robotics & Remote Systems | Chris Eason | CEason@souriau.com | NRNFCC/FWDCC | Jeffery R. Brault | jeff_brault@yahoo.com |
| Thermal Hydraulics | DuWayne Schubring | dlschubring@ufl.edu | SRACC/LLWRCC | Charles “Chip” Martin | MartinCR@nv.doe.gov |

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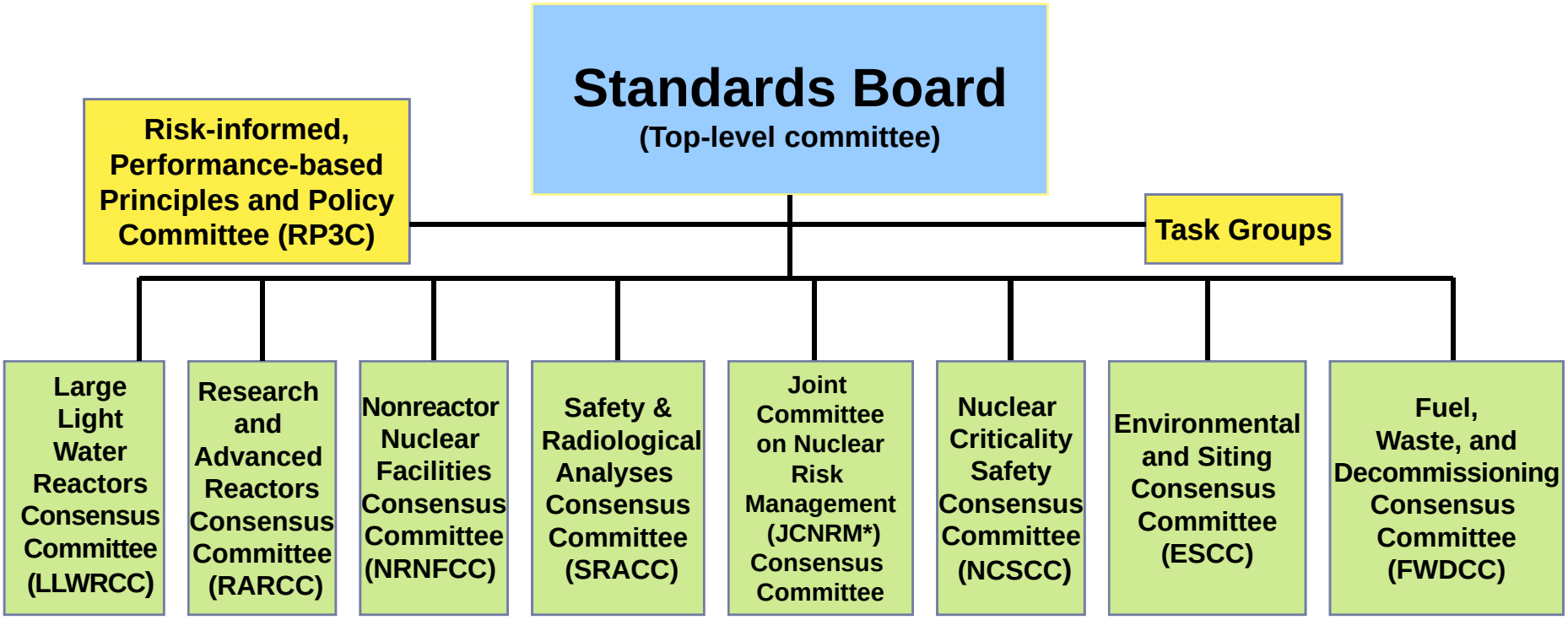
# The ANS Standards Committee




*The JCNRM is a joint ANS and ASME committee.

# PD/SC Liaisons Program (Cont'd)

- **Definitions of PD and SC Liaisons**
  - PD Liaison – The person who interfaces to the relevant standard committee each meeting, reviews consensus committee meeting minutes within its discipline, and shares what the PD is doing in that technical area.
  - SC Liaison – The person who interfaces to the PD and shares standards and standards projects with the PD executive committee.
  - Offer PD liaison/SC liaison personnel the option of applying to becoming full-time members of the respective consensus committee/PD executive committee.
  - Each PD and SC
    - Review the personnel needs and identify PD/SC personnel to fulfill these needs
    - Review delinquent standards that are in need of updating and replacement and identify PD/SC volunteers to support these efforts

# PD/SC Liaisons Program (Cont'd)

- **Expectations during each meeting**
  - PD Liaison - Review minutes of consensus committee meetings within its discipline and share what the PD is doing in that technical area. This can be done in person at the standards Consensus Committee meeting, by phone, by email or through the SC liaison. This should be done at or before the applicable Consensus Committee meeting.
  - SC Liaison - Share standards and standards projects with the PD executive committee and provide a list of personnel and review needs. This can be done in person at the PD meeting, by phone, by email or through the PD liaison. This should be done at or before the applicable PD meeting.
  - Offer PD liaison/ SC liaison personnel the options of applying to becoming full time members of the respective Consensus/PD executive committees (subject to meeting the applicable appointment requirements).
  - Each PD and SC
    - Review the personnel needs and identify PD/SC personnel to fulfill these needs
    - Review delinquent standards that are in need of updating and replacement ; identify PD/SC volunteers to support these efforts

# PD/SC Liaisons Program (Cont'd)

- **Proposed Interface Improvements at all future meetings, this can apply to both the PDs and the SCs**
  - Standards Committee to provide the PDs with Project Initiation Notification System (PINS) forms issued since the last meeting for new standards in their areas of interest for dissemination to its members (completed, but provide again)
    - PDs feedback as applicable, including persons interested in participating or being kept informed of progress, at each meeting to reinforce
  - SC to provide a call for volunteers to the applicable PD for distribution to its members each meeting
    - PDs provide volunteer name and contact information to applicable standards committee, always with changes
  - PDs to indicate topics for which it sees a need for new, revised, or updates to historical standards
  - Include specific agenda items on PD/SC interface on respective meeting agendas
  - SC to setup webinar on an overview of standards to PD executive committee members

# Liaisons to ANS Professional Divisions—9/22/17

| ANS Professional Division | Name of PD Proposed Liaison | Email of PD Liaison | Associated Consensus Committee (see below)* | Name of ANS Standards Committee Proposed Liaison and Subcommittee | Email of ANS Standards Comm. Liaison or interface |
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| Accelerator Applications | James Stubbins | jstubbin@illinois.edu | NRNFCC | Jeffery R. Brault | jeff_brault@yahoo.com |
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| Decommissioning & Environmental Sciences | Jay Peters | JPeters@haleyaldrich.com | FWDCC/ESCC | Carl Mazzola | cmazzola@projectenhancement.com |
| Education, Training, & Workspace Development | Marsha Bala | Marsha.bala@inl.gov | LLWRCC | Bob Busch | busch@unm.edu |
| Fuel Cycle & Waste Management | Jeffery R. Brault | jeff_brault@yahoo.com | FWDCC | Jeffrey R. Brault | jeff_brault@yahoo.com |
| Fusion Energy | | | RARCC | George Flannagan | flanagangf@ornl.gov |
| Human Factors, Instrumentation & Controls | Sean Smith | sean.smith.eng@gmail.com | LLWRCC | Pranab K. Guha | pranab.guha@hq.doe.gov |
| Isotopes & Radiation | Lei Cao | cao.152@osu.edu | SRACC | Charlotta Sanders | sander59@unlv.nevada.edu |
| Materials Science & Technology | Micah Hackett | micahjhackett@gmail.com | ** | | |
| Mathematics & Computation | Paul Hulse | paul.hulse@sellafieldsites.com | SRACC | | |
| Nuclear Criticality Safety | Sedat Goluoglu | goluoglu@mse.ufl.edu | NCSCC | Doug Bowen | bowendg@ornl.gov |
| Nuclear Installations Safety | Susan Pickering | huntnwine@gmail.com | RARCC/NRNRCC /JCNRM | Don Eggett/Robert Budnitz | don.eggett@gmail.com budnitz@pacbell.net |
| Nuclear Nonproliferation Policy | Margaret Harding | margaret@4factorconsulting.com | ANS-60.1 | NA | |
| Operations & Power | Thomas Remick | thomas.remick@aps.com | LLWRCC | Charles K. Brown | ckbrown@southernco.com |
| Radiation Protection & Shielding | Michele Sutton Ferenci | mferenci@hmc.psu.edu | SRACC | Charlotta Sanders | sander59@unlv.nevada.edu |
| Reactor Physics | Pavel Tsvetkov | tsvetkov@tamu.edu | SRACC | Dimitrios Cokinos | cokinos@bnl.gov |
| Robotics & Remote Systems | Chris Eason | CEason@souriau.com | NRNFCC/FWDCC | Jeffery R. Brault | jeff_brault@yahoo.com |
| Thermal Hydraulics | | | SRACC/LLWRCC | Charles “Chip” Martin | MartinCR@nv.doe.gov |

** Contingent Liaison; which would be activated if and when needed

| Consensus Committee Acronym Key* | |
|---|---|
| Environmental and Siting Consensus Committee (ESCC) | Nuclear Criticality Safety Consensus Committee (NCSCC) |
| Fuel, Waste, and Decommissioning Consensus Committee (FWDCC) | Nonreactor Nuclear Facilities Consensus Committee (NRNFCC) |
| Joint Committee on Nuclear Risk Management (JCNRM) | Research and Advanced Reactors Consensus Committee (RARCC) |
| Large Light Water Reactor Consensus Committee (LLWRCC) | Safety and Radiological Analyses Consensus Committee (SRACC) |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 06/2017-01 | George Flanagan to provide Pat Schroeder the State of the Society presentation for distribution to SB members.<br>DUE DATE: June 20, 2017 | George Flanagan | Completed<br><br>Emailed to members on 6/14/17. |
| 06/2017-02 | Individuals noted below are to prepare short presentations in their areas of responsibility for use at the September 26th NRC Standards Forum:<br>• Gene Carpenter: reactor coolant radiological source terms for normal operation & EPZ size evaluation.<br>• George Flanagan: design standards for liquid metal reactors (including sodium fluoride reactors)<br>• Prasad Kadambi: methodology for risk-informed strategies<br>• Ed Wallace: design standards for high temperature gas reactors<br>DUE DATE: July 31, 2017 | Gene Carpenter, George Flanagan, Prasad Kadambi, Ed Wallace | Completed<br><br>Presentation prepared by G. Flanagan with update of all topics.<br>Presentation prepared by P. Kadambi.<br><br>Presentations provided in meeting materials as Attachments 5 – 7. |
| 06/2017-03 | Michaele Brady Raap to form a subgroup to evaluate how ANS can support the NRC Standards Forum, determined additional standards ANS can champion, and to incorporate these findings in the Standards Committee Strategic Plan.<br>DUE DATE: July 1, 2017 | Michaele Brady Raap | Completed<br><br>Subgroup formed with G. Flanagan (chair), C. Carpenter, and J. Nakoski |
| **06/2017-04** | **Incoming SB Chair Michaele Brady Raap to review the chair and members for all of the TGs and solicit/adjust as appropriate (scopes/member lists – Attachment 3 of 6/13/17 minutes). Specific actions discussed include the following:**<br>• **Solicitation of new External Communications TG Chair**<br>• **Add Amir Afzali as a member of the External Communications TG** | **Michaele Brady Raap** | **OPEN** |
| 06/2017-05 | Michaele Brady Raap to request that Craig Piercy let the SB know of bills in Congress that may result in grant opportunities for standards.<br>DUE DATE: August 1, 2017 | Michaele Brady Raap | Completed<br><br>M. Brady Raap sent email to C. Piercy on 8/22/17 & held discussion 9/15/17. |
| 06/2017-06 | Steven Stamm to revise the responses to the Executive Committee comments on the Standards Committee Strategic Plan as follows:<br><br>Comment Response #6: Add a statement that risk-informed and/or performance-based (RIBP) standards will be developed on a case-by-case basis as appropriate and recognize the action item assigned during the RP3C meeting for all standards and projects be evaluated and a recommendation made to incorporate RIPB insights, as applicable.<br><br>Comment Response #9: Include a statement that the SB will work proactively to determine potential funding opportunities that may result in standards grants.<br><br>Comment Response #13: Include the sentiment of the SB that ANS members are being engaged citing the Standards Priority Survey as an example.<br>DUE DATE: June 30, 2017 | Steven Stamm | Completed<br><br>Response finalized and provided to Executive Committee on 7/27/17. SB members on CC. |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 06/2017-07 | Consensus Committee Chairs to emphasize the importance of reviewing the training presentations by working groups.<br>DUE DATE: September 1, 2017 | Consensus Committee Chairs | Completed<br>• Item added to winter meeting agendas for NRNFCC, RARCC, and SRACC.<br>• NCSCC Chair sent email to WGCs 8/28/17 emphasizing the importance of reviewing PPTs.<br>• ESCC Chair emphasized training presentations on 7/20/17 teleconference call.<br>• LLWRCC Chair emphasized importance of training program on 8/25/17 teleconference.<br>• FWDCC Chair emphasized training on 7/27/17 teleconference.<br>• NA for JCNRM |
| 06/2017-08 | Incoming SB Chair Michaele Brady Raap to contact Dr. Abraham Weitzberg to inform him that he has been selected as the 2017 recipient of the Standards Service Award.<br>DUE DATE: July 1, 2017 | Michaele Brady Raap | Completed<br>Formal notification letters issued to all 7/18/17. |
| 06/2017-09 | Pat Schroeder to 1) repurpose the existing site for consensus committee and subcommittee chairs to include all SB members allowing access to ANS standards, 2) add all open PINS forms and project plans to this workspace, and 3) notify SB members when completed and provide links to access.<br>DUE DATE: June 20, 2017 | Pat Schroeder | Completed<br>See documents page of the Standards Documentation Site Workspace. (Direct URL to documents page) |
| 06/2017-10 | Robert Budnitz to provide Steven Stamm a copy of the JCNRM Milestone Schedule as their project plan.<br>DUE DATE: June 20, 2017 | Robert Budnitz | Completed<br>Provided and distributed to SB via email 6/15/17. |
| 06/2017-11 | Pat Schroeder to add the staffing tracking report to each consensus committee report.<br>DUE DATE: ANS 2017 winter meeting. | Pat Schroeder | Completed<br>See chair reports. |
| 06/2017-12 | Steven Stamm to update the SMART Matrix as discussed. This includes the following:<br>• Completion dates should be revised.<br>• Actions for the Priority TG should revised/reassigned.<br>• The status of Goal 1.C should be corrected to recognize the External Communications TG Chair.<br>• Goal 3.E should be revised to be more proactive in anticipating potential upcoming grant opportunities.<br>• The year for Goal 4.B should be changed to 2018.<br>DUE DATE: July 1, 2017 | Steven Stamm | Completed<br>Update provided 6/16/17 and included as attachment in 6/13/17 meeting minutes. (link to minutes) |
| 06/2017-13 | Pat Schroeder to provide the SB Chair options to redefine the balance of interest categories to reduce classification of members in the "Individual" category to the SB Chair for consideration.<br>DUE DATE: September 1, 2017 | Pat Schroeder | Completed<br>Option provided to SB Chair 8/22/17 for consideration. |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 06/2017-14 | Consensus Committee Chairs to review the list of liaisons to ANS PDs and suggest the relevant consensus committee(s).<br>DUE DATE: August 30, 2017 | Consensus Committee Chairs | Completed<br><br>List updated |
| 06/2017-15 | Pat Schroeder to add totals to track associate members on the associate member log.<br>DUE DATE: October 2017 for the winter meeting report | Pat Schroeder | Completed<br><br>See report |
| **06/2017-16** | **RP3C to issue their operating plan with inclusion of the following:**<br>• **RP3C action item to categorize all ANS standards and projects (i.e., current, withdrawn, active, inactive) into one of three categories -- RIPB, PB, or not applicable.**<br>• **Implementation of RIPB principles in ANS-3.14, "Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities," and ANS-58.14, "Safety and Pressure Integrity Classification Criteria for Light Water Reactors."**<br>• **SB decisions on ANS Executive Committee inputs, and**<br>• **The statement proposed by past NCSCC Chair Robert Busch on standards development once addressed.** | **RP3C**<br><br>**Prasad Kadambi, Ed Wallace** | **OPEN** |
| 06/2017-17 | Larry Wetzel to check with Robert Busch on the purpose and background of his proposed statement.<br>DUE DATE: July 1, 2017 | Larry Wetzel | Completed<br><br>L. Wetzel contacted R. Busch. The below additional info was provided to M. Brady Raap on 8/30/17: "His concern is while implicit it needs to be explicitly stated that economics must factor into development and implementation of standards when related to risk." |
| **06/2017-18** | **The Policy TG to determine how the statement on standards development drafted by Robert Busch is addressed.** | **Policy TG** | **OPEN** |
| 06/2017-19 | Robert Budnitz to provide the SB a copy of the comment resolutions on the Part 5 Case.<br>DUE DATE: June 23, 2017 | Robert Budnitz | Completed<br><br>Comment responses issued with the recirculation ballot for LB #410. |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 06/2017-20 | James O'Brien to discuss broadening the scope of ANS-57.11 to include molten salt reactors with the project's chair.<br>DUE DATE: August 1, 2017 | James O'Brien | Completed<br><br>J. O'Brien discussed with ANS-57.11 WGC B. Eble then discussed w/T. Hiltz. They feel method is generic and can accommodate MSRs. Consideration being given to revising the PINS to include MSR as a stakeholder. |
| 06/2017-21 | Pat Schroeder to distribute Amir Afzali's presentation on the Licensing Modernization Program to SB members.<br>DUE DATE: June 20, 2017 | Pat Schroeder | Completed<br><br>Presentation distributed 6/19/17 |
| 1/2017-01 | Ed Wallace to provide George Flanagan a copy of NEI 15-02, "Industry Guidance for the Development of Tier 1 and ITAAC Under 10 CFR Part 52," as it may be relevant to Action Item 11/2016-07 for the development of an ITAAC standard for advanced reactors. | Ed Wallace | Completed<br><br>Provided 1/25/17 |
| 1/2017-02 | Pat Schroeder to schedule a teleconference to discuss Ed Wallace's comments on the Documentation Requirements proposal along with Steven Stamm. | Pat Schroeder | Completed<br><br>Call held 2/6/17. |
| 1/2017-03 | George Flanagan to check with David Pointer about Carl Mazzola's offer to present the non Standards Committee member presentation to the Membership Committee at their next meeting. | George Flanagan | Completed<br><br>Mazzola provided PPT at March/April meeting. |
| 1/2017-04 | James O'Brien to provide Steven Stamm the current draft of the RIPB Plan. | James O'Brien | Completed<br><br>Draft provided 1/25/17 |
| 1/2017-05 | Pat Schroeder to add an agenda item for the June 2017 Standards Board meeting to discuss possible future grant opportunities and the status of the prioritization effect. (relates to Goal #3E of the SMART Matrix). | Pat Schroeder | Completed<br><br>Item added under SC Strategic Plan Report. NOTE: Action questioned in light of notice that no grants w/b issued in near future. |
| 1/2017-06 | Pat Schroeder to send the ESCC Metric Evaluation to Ed Wallace for reference. | Pat Schroeder | Completed<br><br>Sent 1/25/17 |
| 1/2017-07 | ~~Steven Stamm~~ Donald Eggett to check with William Turkowski to confirm whether a "plan" or guidance was provided to PD liaisons (relates to Goal #3F3 of the SMART Matrix).<br>DUE DATE: September 1, 2017 | Donald Eggett<br><br>NOTE: responsibility transferred to D. Eggett as new SB VC. | Completed<br><br>W. Turkowski responded that the plan has been completed and a PPT developed. Presentation to be provided to PD liaisons once PD liaison list is updated as directed by Action Item 6/2017-13. PPT uploaded to Workspace. |
| 1/2017-08 | Pat Schroeder to send a copy of the industry newsletter prepared for James Riley's use to Steven Stamm and Ed Wallace to see if it could be provided to other companies for inclusion in their newsletters. (relates to Goal #4H of the SMART Matrix) | Pat Schroeder | Completed<br><br>Sent 1/25/17 |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| **11/2016-02** | **George Flanagan, as the RARCC Chair, should direct that inputs from the Licensing Modernization Project be considered in prioritization of ANS non-LWR advanced reactors.** **DUE DATE: September 1, 2017** | **George Flanagan** | **OPEN** |
| 11/2016-03 | George Flanagan to provide the SB the gap analysis developed by ORNL once completed. DUE DATE: October/November 2017 | George Flanagan | Completed<br><br>Report emailed 10/16/17 |
| 11/2016-04 | Pat Schroeder to add an agenda item for the November 2017 meeting to discuss an advanced reactor proposal for development of a roadmap/priority list. DUE DATE: November 1, 2017 | Pat Schroeder | Completed<br><br>Added to draft agenda under "Current Issues" |
| **11/2016-07** | **George Flanagan to work with RARCC to consider a new standard on ITAAC for advanced reactors.** **DUE DATE: September 1, 2017** | **George Flanagan** | **OPEN**<br><br>Remains open; trying to find the right people. |
| **11/2016-08** | **Prasad Kadambi to work with Steven Arndt on preparing a conformity assessment business case.** **DUE DATE: September 1, 2017** | **Prasad Kadambi** | **OPEN**<br><br>This action item to work with S. Arndt has been overtaken by events. P. Kadambi had a long talk with Arndt about 5 months ago which resulted in a promise for but no actual action. However, the exchange recorded in the SB 6/13/17 meeting with B. Coward should become the new basis for the action item. (See p.4 of the 6/13/17 SB minutes.)<br><br>Kadambi has invited Ms. Roberta Telles to address the SB on conformity assessment. |
| **11/2016-17** | **Consensus Committee Chairs to follow up with their Professional Division Liaison to facilitate participation. (Draft PD liaison list)** **DUE DATE: September 1, 2017** | **Consensus Committee Chairs** | **OPEN**<br><br>Flanagan, Mazzola, Budnitz, & Wetzel confirmed that they have completed this action item. |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| **11/2016-18** | **Carl Mazzola to let the Professional Division Chair know of poor response from Professional Division Liaisons.** **DUE DATE: September 1, 2017** | **Carl Mazzola** | **OPEN** C. Mazzola recommends closing this action item. PDC Chair H. Gougar has been proactive in this PD liaison effort and another reminder that the PDs are, in general, not assisting, will probably not be fruitful. W. Turkowski is the SB lead and with actual data showing that CCs have not had many of their liaisons respond, would be more convincing to enable PDC Chair action. This collection of such data can become part of the SB program to continually connect the PDs with their associated CCs. Specific metrics are needed to make the case that PDs are not effectively responding. |
| 11/2016-19 | William Turkowski to add Paul Hulse as the Mathematics & Computations Professional Division Liaison. | William Turkowski | Completed Turkowski confirmed 1/30/17 that P. Hulse was added. |
| **11/2016-20** | **Gene Carpenter to work with James Riley to create a process to provide information to utilities.** **DUE DATE: September 1, 2017** | **Gene Carpenter, James Riley** | **OPEN** With retirement of J. Riley, this action will need to be reassigned to R. Bell. |
| 11/2016-21 | Consensus Committee Chairs to speak with their subcommittee chairs to make sure they are aware of the toolkit and the standards development process. DUE DATE: August 31, 2017 | Consensus Committee Chairs | Completed SRACC addressing at 10/29/17 meeting. NCSCC completed 8/28/17 via email. Completed by Flanagan & Mazzola on 12/13/16; Carpenter requested 5/15/17 on teleconference; N/A Budnitz. NRNFCC & FWDCC have no SubC chairs; CC chairs addressed directly with WGCs. |
| **11/2016-22** | **RP3C to provide the SB their risk-informed, performance-based educational piece (or toolkit) for working groups once completed for review.** **DUE DATE: August 31, 2017** | **Prasad Kadambi, Ed Wallace** | **OPEN** Draft issued for RP3C comment. Comments being resolved by RP3C**.** |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 11/2016-35 | ~~George Flanagan~~ **Donald Eggett to solicit a liaison from IEEE~~/Nuclear Power Engineering Committee~~.**<br>**DUE DATE: September 1, 2017** | **Donald Eggett**<br>~~**George Flanagan**~~ | **OPEN**<br>This action was discussed on the SB leadership transition call. D. Eggett agreed per email 4/6/17 to take responsibility for this action. With new IEEE committee structure, NPEC no longer exists. Alternate liaison relationship needed.<br><br>9/8/17: D. Eggett sent inquiry to Marco Migliaro of ISTO/IEEE at marco@esaconsulting.com. |
| 6/2016-03<br>#0123 | ~~James Riley~~ **Russell Bell to help coordinate ANS work on advanced reactor standards with other SDOs and industry.**<br>**Due Date: On-going** | **NEI Liaison** | **On-going**<br><br>To be transferred to R. Bell due to 7/31/17 retirement of J. Riley. |
| 6/2016-14<br>#0130 & #0131 | **External Communications Task Group to evaluate and improve the process of notifying the public and NEI/utilities of standards development activities.**<br>**Due Date: September 1, 2017** | **ECTG** | **OPEN**<br><br>At 11/2016 meeting, Riley clarified that he will be facilitating information w/the Engineering VPs and the other SDOs. The information needs to be narrowed to the audience.<br><br>A follow up action item was assigned for Carpenter to work with Riley to create a process on providing information to utilities. (See Action Item 11/2016-15) |
| 6/2016-18<br>#0146 & #0147 | **Gene Carpenter ~~Consensus Committee Chairs~~ to discuss the needed action on standards ranked 11-20 on the standards priority survey with their consensus committee and provide input at the SB meeting in November.**<br>**Due Date: September 1, 2017** | **Gene Carpenter** | **OPEN**<br><br>With responses from all CCs but LLWRCC, the action item was amended to reflect Gene Carpenter responsible. |

# Standards Board Action Item Report

For Discussion at 10/31/17 Meeting

Due to limited time at the 6/13/17 meeting, open action items were not reviewed. Action items that have been completed are recognized if known.

| Action Item | Description | Responsibility | Status/Comments /Reassignments |
|---|---|---|---|
| 02/2016-07<br>#0119 | John Nakoski~~Gene Carpente~~r to check with the NRC to see if they have reviewed ANSI/ANS-5.1-2014 and are considering replacing the reference of the ANS-5.1 1971 draft in 10CFR50, Appendix K.<br>DUE DATE: September 1, 2017 | John Nakoski | **OPEN**<br>Carpenter reported that as of the end of August 2016 when he left NRC, the review was still in process. This action item was amended to make new NRC rep -- Nakoski -- responsible. |
| 11/2015-21 | The LLWRCC to approve a PINS for a cybersecurity standard and forward to the standards manager.<br>DUE DATE: September 1, 2017 | Gene Carpenter | **OPEN**<br>PINS in development |
| 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 September 2018.<br>DUE DATE: September 15, 2018 | Pat Schroeder | **On-going**<br>Broadcast issued 9/15/16<br>(link to broadcast)<br>Next broadcast to be issued 9/15/18) |
| 11/2014-08 | Pat Schroeder to create a similar solicitation broadcast to the YMG and NA-YGN.<br>DUE DATE: September 15, 2017 | Pat Schroeder | **On-going**<br>YMG chair, Piyush Sabharwall, sent solicitation broadcast directly to YMG on 8/23/17.<br>Attempts made to reach NAYGN leadership on 8/23/17 & 9/19/17 have not been successful. |

# Associate Member Log (Updated 10/16/17)

| | Name | Email | Solicitation or Random | Date VF Rec'd | PLACEMENT | COMMENTS |
|---|---|---|---|---|---|---|
| 1 | Chelsea Sutton (Maiden Name: Weaver | clynne21@gmail.com ; clynne21@lanl.gov | Not sure but on 8.3 since 2014 | NO | 8.3 | 4/25/17: Resigned from 8.3 as no longer in NCS. Currently works in weapon systems surveillance and requirements. Confirmed w/S. Stamm that we do not have any standards in this area to reassign. Moved to inactive. Placed/recruited by WGC; VF/resume requested. |
| 2 | Chelsea Collins | chelseatcollins@ufl.edu | Student Section Solicitation 2014 | 8/13/2014 | 8.3 | 3/26/16: Graduated from UFL and employed with FPL - No longer interested inparticipating. |
| 3 | Joseph (Joe) Kopacz | jkopacz@iastate.edu | Student Section Solicitation 2014 | 8/12/2014 | 3.13 | NO LONGER ACTIVE; email no longer good; no response from multiple attempts to reach using alternate email -DEACTIVATES |
| 4 | Margaret Kurtts | mkurtts@vols.utk.edu | Student Section Solicitation 2014 | 8/12/2014 | ANS-30.2 | 11/22/16: A. Afzali accepted Kurtts & Kurtts notified.<br>11/21/16: Sent request to ANS-30.2 WGC to consider as assoc. member after response from Kurtts expressing interest in ANS-30.2 & other ANS-29 standards; also some interest in ANS-19.4 & ANS-19.5.<br>11/11/16: Sent followup email offering reassignment now or anytime in the future. 9/2016: learned that she is no longer active on SC-SM; stop participating because job change not relevant to committee. Offered to faciliate placement on different committee. NOT IN WORKSPACE; USES C&S CONNECT |
| 5 | Cailyn Ludwig | ludwig7@purdue.edu | Student Section Solicitation 2014 | 8/12/2014 | 3.14 | |
| 6 | Benjamin (Ben) Prewitt | bjp2n4@mst.edu | Student Section Solicitation 2014 | 8/12/2014 | 20.1 | |
| 7 | Dylan Robideaux | drobi825@gmail.com | Student Section Solicitation 2014 | 7/24/2014 | 8.7 | |
| 8 | Dong (Allen) Wang | wangdong@sdnpc.com | random | 7/1/2014 | 3.5 | |
| 9 | 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. |
| 10 | Manish Sharma | mksrkf@mst.edu | Student Section Solicitation 2014 | 8/12/2014 | 6.4.3 | |
| 11 | Gregory Suehr | gregory.suehr@gmail.com | Student Section Solicitation 2014 | 8/12/2014 | 57.2/52.73 | |
| 12 | Stanley (Stan) Tackett | stackett@insight.rr.com | Student Section Solicitation 2014 | 8/12/2014 | 6.4.2 | |
| 13 | Mara Watson | marawtsn@gmail.com | Student Section Solicitation 2014 | 8/12/2014 | ESCC | Never completed WG user account, absolutely no response to anything since added to ESCC; removed from ESCC & sent offer to facilitate more appropriate placement 5/3/16. |
| 14 | Tim Stout | timothy.stout@exeloncorp.com | Random | 8/27/2014 | ANS-58.9 | |
| 15 | Mihai Diaconeasa | diacon@ucla.edu | Random | 5/7/2014 | ANS-30.1 | 9/19/17: added to 2.34 as requested.<br>8/25/15: placed on 30.1 |
| 16 | Matthew Hertel | hertelm@onid.oregonstate.edu | Random | 3/31/2015 | ANS-59.3 | |
| 17 | Theresa Cutler | tcutler@lanl.gov | Recruited by ANS-8.23 WGC/Baker | 10/24/2015 | ANS-8.23 8.10 | 8/3/17: informed by 8.10 WGC A. Prichard that she has also been added to 8.10 as assoc. member. |
| 18 | Christopher Courtenay | Christopher.Courtenay@duke-energy.com | YMG Solicitation 2015 | 11/2015 | ANS-2.25 | Accepted invite to ANS-2.25, althought not his area of expertise; should be considered on siting standard when initiated |
| 19 | Shilp Vasavada | shilp_v@yahoo.com | NAYGM 2015 solicitation | 11/18/2015 | ANS-3.13 | Rec'd invite to 3.13 & accepted same day. |
| 20 | Nima Fathi | nfathi@unm.edu | YMG Solicitation 2015 | 11/3/2015 | ANS-10.4 | 5/13/17: moved to 10.4 WG; initially placed on ans-10 subc as placeholder; Invitation letter issued 1/6/16 & accepted |
| 21 | Paul Romano | paul.k.romano@gmail.com | YMG Solicitation 2015 | 11/11/2015 | ANS-10.4 | 5/13/17: moved from ans-10 to 10.4; initially placed on subc as placeholder; Invitation letter issued 11/13/16 |
| 22 | Jeremy Gustafson | jlgustafson@bwxt.com | YMG Solicitation 2015 | 11/1/2015 | ANS-56.8 | Letter issued and accepted 1/25/16 |
| 23 | Kaushik Banerjee | banerjeek@ornl.gov | YMG Solicitation 2015 | 11/20/2015 | ANS-19.6.1 | Letter issued and accepted 1/26/16 |
| 24 | Philip Jensen | phjn123@gmail.com | YMG Solicitation 2015 | 11/2/2015 | ANS-3.14 | Letter issued 1/28/16 & accepted |
| 25 | Enerel Munkhzul | Enerel.Munkhzul@nexteraenergy.com | YMG Solicitation 2015 | 1/15/2016 | ANS-30.2 | Letter issued 1/28/16 & accepted |
| 26 | Tracy Stover | tracy.stover@srs.gov | Random | 11/3/2015 | ANS-8.12 | Letter issued 2/26/16<br>***NO LONGER ASSOC. MEMBER; CURRENT 8.12 VC!*** |

# Associate Member Log (Updated 10/16/17)

| | | | | | | |
|---|---|---|---|---|---|---|
| 27 | Siddharth Suman | siddharthhuman@gmail.com | YMG Solicitation 2015 | 11/11/2015 | ANS-8.20 | Letter issued 3/6/16 & accepted |
| 28 | Evan Beese | ebeese@foreignpolicyi.org | YMG Solicitation 2015 | Nov-15 | ANS-15.1 | Letter issued 3/8/16 & accepted |
| 29 | Matthew Lynch | matt-lynch@live.com | YMG Solicitation 2015 | 15-Nov | 8.1 | No longer interested/active.<br>Letter issued 3/15/16 |
| 30 | Scott Finfrock | Scott.Finfrock@srs.gov | Invited by L. Wetzel to join 8.24 as Associate member; June 2015. | | | |
| 31 | Brandon O'Donnell | odonnell.brandon@gmail.com | Invited by J. Baker | Oct-15 | ANS-8.23 | Solicited by J. Baker for 8.23 & added 10/2015<br>***NO LONGER ASSOC. MEMBER; UPGRADED TO VOTING MEMBER.*** |
| 32 | Blaine Rice | barice@nuclearfuelservices.com | Invited by J. Baker | Oct-15 | ANS-8.23 | Solicited by J. Baker for 8.23 & added 10/2016 |
| 33 | Bristol Hartlage | bhartlage@curtisswright.com | YMG Solicitation 2015 | Nov-15 | ANS-3.15 | Letter issued 3/23/16 & accepted |
| 34 | Ning Zhang | ning.zhang@lanl.gov | random | 2014 | ANS-8.1 | Added to 8.1 as assoc member 6/28/16; initially added to 8.15 in 2014 as Assoc Member **but is now full member on 8.15.** |
| 35 | Steven Thompson | steven.a.thompson@dom.com | random | 6/20/16 | ANS-19.10 | e-letter w/placement on 19.10 sent 7-14-16 |
| 36 | Amir Bahadori | bahadori@ksu.edu | random | 5/27/2016 | ANS-6.4.2 | Accepted to 6.4.2 on 10/13/16 and notification issued same date. |
| 37 | Matthew Chapa | matt.r.chapa@gmail.com | random | 10/11/2016 | ANS-8.19 | Accepted to ANS-8.19 on 1/13/17; letter sent 1/16/17. |
| 38 | Chelsea Gunter | Chelsea.Gunter@Shearman.com | Feb 2017 NSN Brief | 2/16/2017 | ANS-57.11 | Accepted to ANS-57.11 on 2/21/17; message sent 2/21/17. |
| 39 | Charles Cohen | charles.cohen.72@gmail.com | NN | 3/12/2017 | ANS-2.18 | Accepted to ANS-2.18 on 3/15/17; e-letter sent 2/16/17. |
| 40 | R. Patrick White | rpwhite@mit.edu | responded to N&D call out for volunteers for 30.3 | 7/21/2017 | ANS-30.3 | Accepted to 30.3 on 7/24/17: e-letter sent same day. |
| 41 | Kelsey Amundson | kamundson5@gmail.com | random | 6/30/2017 | ANS-8.20 | 8/30/17: Invite sent by D. Hill & accepted by K. Amundson; followup letter sent by PAS same day.<br>8/22/17: Another reminder sent to J. Chapman w/Bowen on CC-ps.<br>8/1/17: reminder sent-ps.<br>6/30/17: Send VF/resume to 8.28 WGC J. Chapman for consideration - others of interest have assoc members or are not active. |
| 42 | Timothy Crook | tcrook@transatomicpower.com | random | 6/8/2017 | ANS-20.2 | 9/26/17: Accepted by D. Holcomb on ANS-20.2-ps.<br>9/25/17: W/Flanagan's permission, Crook's VF/resume was sent to ANS-15.22 WGC D. Cronin for consideration-ps.<br>9/22/17: Sent email to Flanagan w/Holcomb on copy requesting whether another WG should be considered for placement; possibly 15.22-ps.<br>8/22/17: reminder sent to D. Holcomb w- Flanagan on copy-ps.<br>8/1/17: reminder sent -ps.<br>6/15/17: Flanagan responded that he connected Crook w/Holcomb for 20.2. Followup email sent to Holcomb to confirm placement.<br>6/15/17: VF sent to Flanagan for suggestion on placement.<br>Date on VF is 3/17/17 but not rec'd until 6/8/17. |
| 43 | Vaibhav Yadav | vaibhav.yadav@inl.gov | YMG Solicitation 2017 | 10/4/2017 | LPSD WG | 10/5/17: Sloane asked SC-SD chairs to consider; Wakefield accepted V. Yadav on LPSD WG; Yadav was notified & completed ASME forms the same day-ps.<br>10/4/17: Docs sent to Sloane & Amico for consideration under SC-SM & SC-SD-ps.<br>10/3/17: rec'f VF form/resume.<br>8/23/17: Responded right away to YMG solicitation & was sent VF. Wanted to get management approval to participate before completing VF. |

**43 associate members since 8/2015**
**35 current associate members**
**2 individuals waiting for placement** **NOTE: Both interested in ANS-8 standards. Per ANS-8 Subc Chair, both will be placed by ANS 2017 winter meeting.**

# RP3C Report to Standards Board

Washington, DC

October 31, 2017

# Significant Themes Covered of Interest to the Standards Board

- RP3C's Operating Plan
  - Attachment 4 from RP3C Meeting Agenda Package
- Categorization of ANS Standards and Projects
  - Attachment 5 from RP3C Agenda Package and Observations by Subgroup
- Procedural Guidance Development
  - Attachment 6 from RP3C Agenda Package + Slides
- Pilots and Ongoing Projects
- Open and Action Items

# Operating Plan Names and Dates

- Draft Operating Plan discussed at RP3C will be provided to SB for information and comment.
- Names were assigned and target dates set for first four items
- Categorization of Standards and Projects
  - First draft done; next draft contingent on inputs from CCs.
- Develop RIPB Guidance for CCs
  - Partial first draft expected by end of 2017.
- Pilot Implementation of RIPB Principles
  - Status of progress will be reported in June 2018.
- Indoctrination of WGs in RIPB
  - Development of material will be pursued with available guidance.

# Categorization of ANS Standards and Projects

- Spreadsheet and observations will be provided to the SB for information and comment.
- Major observation is that the preliminary categorization needs feedback and inputs from CCs.
- Observations by RP3C shown in slides are a starting point for discussions with CCs.
- Perspectives offered by CCs and identification of their priorities will guide next phase.

# Procedural Guidance Development

- Current draft of Guidance Outline and the slides used for RP3C discussion will be provided to SB for information and comment.
- Guidance development will seek inputs from a variety of sources
  - Work of the Licensing Modernization Project
  - Case study of NFPA-805
  - Completed projects such as ANS-53.1 and [ANS-2.26 + ASCE-43.05]

# Pilots & Projects / Open & Action Items

- Piloting of ANS-30.2 depends on ongoing interactions between LMP, NEI, and NRC
- Piloting of ANS-3.14 will be pursued as WG progresses with their work.
- Other ongoing projects will provide inputs further to SB directed interactions with RP3C.
- RP3C disposition of action items will be finalized based on outcome of SB discussions.

**Draft for discussion during 10-30-2017 RP3C Meeting (Attachment 4)**

# Risk-Informed Performance-Based Principles and Policy Committee Operating Plan

DRAFT 9-29-2017

## 1. Introduction

In 2013, the American Nuclear Society's (ANS) Standards Board (SB) established a Risk-Informed and Performance-Based Principles and Policy Committee (RP3C) responsible for developing approaches, priorities, responsibilities and schedules for implementation of risk informed and performance based (RIPB) principles in ANS standards.

This operating plan describes the RP3C goals and activities/processes that RP3C will perform/utilize to meet its responsibilities consistent with the RP3C bylaws.

## 2. RPC3 Activities/Processes

### 2.1 Development of RIPB Guide for ANS Committees and Working Groups

The RP3C will develop a guidance document on concepts/methods that can be used to make ANS standards more risk-inform and/or performance-based during revision or initial development. This guide will discuss the integration of existing requirements with risk informed and performance based requirements.

The guidance document will be based on first developing an understanding of the nature and scope of ANS standards and projects (current, withdrawn, active, inactive). Available data on the ANS standards and projects will be categorized into one of three categories – RIPB, PB, and not applicable. The categorized list will be shared with the Consensus Committees in the ANS Standards Committee and assignments will be made for CCs to review and discuss with RP3C.

In parallel with the categorization, implementation of RIPB principles will be pursued with Working Groups for ANS-30.2 and ANS-3.14. The content of the RP3C guidance document will be informed by the experience with implementation of RIPB principles relative to these two standards.

#### 2.1.1 Categorization of ANS Standards and Projects

The categorization activity will be performed by the team of Ed Wallace, Alan Levin, and Jim August. The data available in the following link will be used:

https://workspace.ans.org/higherlogic/ws/groups/scg/documents

Schedule:

- 1st draft sent to RP3C committee
- Comments included and 2nd draft sent to RP3C
- 3rd draft sent to CCs and Standards Board

Responsibilities:

- Lead Ed Wallace

#### 2.1.2 Develop RIPB guidance document for CCs

The guidance document on concepts/methods that can be used to make ANS standards more risk-inform and/or performance-based during revision or initial development will be prepared using generally accepted principles and policies as documented for practices being currently proposed or

implemented successfully. This guide will discuss the integration of existing requirements with risk informed and performance based requirements.

Schedule:
- 1st draft sent to RP3C committee
- Comments included and 2nd draft sent to RP3C
- 3rd draft sent to CCs and Standards Board

Responsibilities:
- Lead Prasad Kadambi

2.1.3 Pilot Implementation of RIPB Principles in ANS-30.2 and ANS-3.14

The pilot implementation of RIPB principles in these two standards will be pursued in cooperation with the WG Chairs by Prasad Kadambi, Jim O'Brien and [Amir Afzali?].

Schedule:
- Develop Action Plan for pilot implementation for each standard
    - ANS-30.2
    - ANS-3.14
- 1st draft of implementation experience report to RP3C

Responsibilities:
- Lead Prasad Kadambi

**2.2 Indoctrination of Standards WGs in RIPB**

The RP3C will set up webinar to brief the WGs on RIPB guide, outline advantages of inclusion RIPB in standards, and how the RP3C will operate to support WGs in developing more RIPB standards.

Schedule:
- Draft of training package provided to Standard Board
- Trail run of training provided to RP3C and Standard Board
- Amended presentation based on RP3C and SB feedback
- Begin Webinar presentations to CCs and WGs

Responsibilities:
- Lead Ed Wallace

**2.3 RP3C support and review of ANS standards**

The RP3C will develop a process for RP3C support and review of ANS standards including review of PINS, early interface with WG to identify areas and approaches that can be used in the standard, support of WG during draft standard development, review of draft standard prior to being sent for CC balloting.

Schedule:
- Draft of process document provided to Standard Board
- Comments included and 2nd draft sent to RP3C
- 3rd draft sent to Standards Board for balloting

The RP3C will work with each consensus committee to develop a prioritized list and schedule for incorporating risk-informed and performance-based principles into its standards

Schedule:

- Develop

Responsibilities:
- Lead Jim O'Brien

Identify and define any new standards that are related to risk-informed and performance-based principles that are not assigned to other standards working groups and work with the SB and CCs to identify an appropriate WG lead (and CC) for the standards development.

### 2.4 Interface with standards organization, industry groups and regulators

Interface with industry groups and organizations, as requested by the SB, for discussions related to achieving better coordinated risk-informed and performance-based principles and topical activities.

Specifically will interact with the JCNRM, NEI, INPO, NRC, and DOE to get their perspectives on how ANS standards could be developed or revised that make them more RIPB and better support industry and regulator objectives to support safe and efficient nuclear facility designs and operations as related to standards.

It is expected that the work of RP3C will consider and promote a wide range of outcome-oriented probabilistic applications in helping ANS standards activities become more risk-informed and performance-based. A key area where a huge amount of literature exists waiting for application is decision theory and methods for decision-making under uncertainty. The RP3C will focus on developing a paper on how probabilistic/decisionmaking applications may be utilized to support for desired safety outcomes in the use of ANS standards Clearly defining safety outcomes, together with performance assessment and monitoring, are essential elements of a performance-based approach.

Schedule:
- Perform initial set of discussions

Responsibilities:
(Multiple, e.g.)
- Amir Afzali, Advanced Reactor Regulatory Task Force
- Ed Wallace, various
- Bill Reckley, NRC
- Jim O'Brien, DOE

### 2.5 Self-Assessment for Effectiveness

Effectiveness is defined as the degree of congruence between expectations regarding targeted improvements and the observed outcomes.

Schedule:
-

Responsibilities:
-

Additional activities to be included on an ad hoc basis:
1. Interface with JCNRM – SCORA to coordinate risk application development and avoid duplication of efforts
2. Identify potential funding opportunities to advance ANS standards development and use. With the approval of the SB Chair pursue those not assigned to a Consensus Committee or other SB committee.

# RP3C Categorization of ANS Standards

| | CC Owner | PD Interest | PINS Available | DESIGNATION | | | TITLE | STATUS | Status Indicator | RP3C Opportunity: RIPB | RI | PB | D | Applicability: Adv Rx focus | AR applicability | Likely Timing of Need* | NT- <3 yrs MT 3-5 yrs LT >5 yrs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | ESCC | | | ANS- | 2 | 8 | Determining Design Basis Flooding at Power Reactor Sites | withdrawn standard; active project | P | | AEJ | | | | | | | 3 |
| 27 | ESCC | | | ANS- | 2 | 26 | Categorization of Nuclear Facility Structures, Systems, and Components For Seismic Design | current standard approved 2004 (R2010) | A | AE | J | | | | | | | 2 |
| 28 | ESCC | | | ANS- | 2 | 27 | Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments | current standard approved 2008 (R2016) | A | AJE | | | | | | | | 3 |
| 35 | LLWRCC | | | ANS- | 3 | 1 | Selection, Qualification, and Training of Personnel for Nuclear Power Plants | current standard approved 2014 | A | | | | AEJ | | | | | 3 |
| 36 | LLWRCC | | | ANS- | 3 | 2 | Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants | current standard approved 2012 | A | JE | | | A | | | | | 2 |
| 62 | LLWRCC | | | ANS- | 3 | 13 | Nuclear Facility Reliability Assurance Program (RAP) Development | active project | A | AEJ | | | | | | | | 3 |
| 63 | NRNFCC | | | ANS- | 3 | 14 | Process for Aging Management and Life Extension for Nonreactor Nuclear Facilities | active project | A | AEJ | | | | | | | | 3 |
| 206 | LLWRCC | | | ANS- | 18 | 1 | Radioactive Source Term for Normal Operation of Light Water Reactors | revision approved 2016 | A | | | | AEJ | | | | | 3 |
| 280 | LLWRCC | | | ANS- | 51 | 10 | Auxiliary Feedwater System for Pressurized Water Reactors | current standard approved in 1991 (R2008); revision in development | A | E | | AJ | | | | | | 2 |
| 288 | RARCC | | | ANS- | 53 | 1 | Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants | current standard approved 2011 (R2016) | A | AEJ | | | | | | | | 3 |
| 313 | RARCC | | | ANS- | 54 | 1 | Nuclear Safety Criteria and Design Process for Liquid-Sodium-Cooled-Reactor NPPs | active project; historical revision | P | AEJ | | | | | | | | 3 |
| 318 | RARCC | | | ANS- | 54 | 6 | LMFBR Safety Classification and Related Requirements | inactive project; draft issued for trial use only | I | J | | | | | | | | 3 |
| 334 | LLWRCC | | | ANS- | 56 | 1 | Containment Hydrogen Control | active project | P | AE | | J | | | | | | 2 |
| 341 | LLWRCC | | | ANS- | 56 | 8 | Containment System Leakage Testing Requirements | current standard approved 2002 (R2016); RV in development | A | | | E | AJ | | | | | 2 |
| 347 | FWDCC | | | ANS- | 57 | 1 | Design Requirements for Light Water Reactor Fuel Handling Systems | current standard approved 1992 (R2015) | A | E | | A | | | | | | 2 |
| 349 | FWDCC | | | ANS- | 57 | 3 | Design Requirements for New Fuel Storage Facilities at LWR Plants | withdrawn standard; revision in development | W | AJ | | | | | | | | 3 |
| 357 | FWDCC | | | ANS- | 57 | 11 | Integrated Safety Assessments for Fuel Cycle Facilities | active project | p | AEJ | | | | | | | | 3 |
| 366 | LLWRCC | | | ANS- | 58 | 8 | Time Response Design Criteria for Safety-Related Operator Actions | current standard approved 1994 (R2008); RV in development | A | | | AE | | | | | | 3 |
| 367 | LLWRCC | | | ANS- | 58 | 9 | Single Failure Criteria for Light Water Reactor Safety-Related Fluid Systems | current standard approved 1992 (R2015) NOTE: ANSI/ANS-58.9-1981;R1987 and ANSI/ANS-58.9-2002 are one in the same; because paperwork for the 2002 reaffirmation was not filed with ANSI in time, the 1981 standard was reapproved as a new | A | E | | | AJ | | | | | 2 |
| 372 | LLWRCC | | | ANS- | 58 | 14 | Safety and Pressure Integrity Classification Criteria for Light Water Reactors | current standard approved 2011 (R2017) | A | | J | E | A | | | | | 1 |
| 374 | NRNFCC | | | ANS- | 58 | 16 | Safety Categorization and Design Criteria for Nonreactor Nuclear Facilities | current standard approved 2014 | A | AEJ | | | | | | | | 3 |
| 388 | LLWRCC | | | ANS- | 59 | 51 | Fuel Oil Systems for Safety-Related Emergency Diesel Generators | current standard approved 1997 (R2015) | A | | | AE | J | | | | | 2 |
| 389 | LLWRCC | | | ANS- | 59 | 52 | Lubricating Oil Systems for Safety-Related Emergency Diesel Generators | current standard approved 1998 (R2015) | A | | | AE | J | | | | | 2 |

**Legend to numbers and colors**
If AJ=Jim and Alan same
If AE- Alan and Ed same
If A = Alan only
If E = Ed only
If J = Jim only
If JE = Jim and Ed
IF AEJ = all 3 concur
Colors: Green 2 or more agree
Yellow: some discussion possible
Red: no agreement

# Procedural Guidance for Incorporating Risk-Informed and Performance-Based Approaches in ANS Standards (Attachment 6)

***Consensus of Standards Board Required Prior to Implementation***

## 1. PURPOSE

The purpose of this procedure is to outline a process that can be used by developers of standards to incorporate risk informed and performance based approaches.

## 2. BACKGROUND

Risk Informed Performance Based (RIPB) principles enable economical implementation of a graded approach to safety so that resources and higher quality expectations are associated with the most important activities contributing to the desired outcome. At the same time, safety implementation would avoid resource expenditures that do not provide benefits through reduced risk.

NRC has defined the RIPB approach as: "An approach in which risk insights, engineering analysis and judgment including the principle of defense-in-depth and the incorporation of safety margins, and performance history are used, to (1) focus attention on the most important activities, (2) establish objective criteria for evaluating performance, (3) develop measurable or calculable parameters for monitoring system and licensee performance, (4) provide flexibility to determine how to meet the established performance criteria in a way that will encourage and reward improved outcomes, and (5) focus on the results as the primary basis for safety decision-making." [see SRM-SECY-98-0144].

NFPA 805 is an example of a performance-based standard that was endorsed by the NRC. It was prepared by the NFPA Technical Committee on Fire Protection for Nuclear Facilities. Issued by the Standards Council on January 13, 2001, it was approved as an American National Standard on February 9, 2001. NFPA 805 describes a methodology for establishing fundamental fire protection program.

The NRC evaluated NFPA 805 and determined that, in general, it is consistent with the principles for performance-based regulation. It provides for the establishment of a minimum set of fire protection requirements but allows performance based or deterministic approaches to be used to meet performance criteria. Under NFPA 805, a licensee adopts the performance goals, objectives, and criteria itemized in Chapter 1 of NFPA 805 and then meets those goals, objectives, and criteria through the implementation of performance-based or deterministic approaches.

The NFPA 805 methodology incorporates the following attributes: (1) measurable or calculable parameters exist to monitor the system, including facility performance; (2) objective criteria to assess performance; and (3) flexibility to determine how to meet established performance criteria in ways that will encourage and reward improved outcomes.

## 3. PROCEDURE

### 3.1 Determining whether standard can utilize performance based principles

All standards prescribe to certain extents <u>what</u> (the outcome) is to be obtained from using the standard and to different level, <u>how</u> to obtain the outcome.
Depending upon the outcome to be achieved there may be only one way to achieve it. For example, in determining decay heat load, it is necessary. For other outcomes, there may be more than one way to obtain the outcome. In these cases the standard should still identify the process for

achieving the outcome but the process can include flexibility in how the outcome is achieved. The degree of flexibility equates to the amount of performance based.
This is discussed further below.

3.1.1 Define ultimate outcome of the Standard

Clear understanding (and statement) of the ultimate outcome of the standard is a critical step in any standard development. It will also be necessary in determining whether the standard is candidate for being performance based.

3.1.2 Define the approach (major steps) to obtaining the outcome

In order for a standard to be a "standard" it must define and require the use of the approach for achieving an outcome. The goal of a standard is to define the approach such that there is a high level of confidence that the outcome will be achieved.

3.1.3 Determine whether there are alternative approaches for achieving the outcome.

For some situations there will only be one approach that will result in achieving the outcome (e.g., calculation of decay heat load). In that case the standard is not suitable to be made "performance based."

In other situations, there may be different means to establish the outcome (for example achieving an appropriate fire protection program or radiation protection program). In this situation the standard development working group should determine the level of specificity in the definition of the process for achieving the outcome (or sub outcomes) is necessary.

**3.2 Determine whether the standard can utilize risk informed approach to allow for more efficient achieving of outcomes**

The following are ways to utilize risk informed approaches in standards development:

- Make the ultimate outcome is risk based (e.g., consequence at a given frequency): An example of this is seismic standards.
- Specify the use of probabilistic or statistical methods for achieving the outcome: An example of this is a standard that uses collection of an expert based data (or other data) such as the seismic hazards process
- Allow different approaches to be made to achieve outcomes but specify the approach used be justified to provide an appropriate level of confidence on the accuracy or repeatability of achieving the outcome. An example of this is where the margin of safety provided (or amount of conservatism) is based the confidence (or uncertainty) associated with the data or the process used in achieving the outcome.
- Allow risk insights to size a program (radiation protection program) and/or areas the program will focus on.

If the standard can be developed (or updated) using any of these approaches; then it may be a good candidate for risk informing.

**3.3 Determining whether to apply performance based, risk informed, or performance based/risk informed approach for the standard.**

The reason to apply a performance based, risk based, or a performance based/risk informed approach in a standard is that it will result in an outcome that is more useful to the standard user(s). This means that if provides better assurance of safety and/or better utilization of resources to achieve the appropriate level of safety.

# Standards Prioritization Survey – Top 20

| TOP 10 | | |
|---|---|---|
| **Rank** | **Title or Topical Area (No.)** | **Assigned CC** |
| 1 | Criteria for Severe Accident Evaluation (ANS-58.15) | SRACC |
| 2 | Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors (ANS-58.11) | LLWRCC |
| 3 | Risk-Informed and Performance-Based Nuclear Power Plant Design Process (ANS-30.1) | RARCC |
| 4 | Post-Accident Monitoring (ANS-TBD) | LLWRCC |
| 5 | Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications (ASME/ANS RA-S) | JCNRM |
| 6 | Design Requirements for Light Water Reactor Spent Fuel Facilities at Nuclear Power Plants (ANS-57.2) | FWDCC |
| 7 | Containment Hydrogen Control (ANS-56.1) | LLWRCC |
| 8 | Properties of Planning, Development, Conduct, and Evaluation of Drills and Exercises for Emergency Preparedness at Nuclear Facilities (ANS-3.8.7) | LLWRCC |
| 9 | Properties of Radiological Emergency Response Plans and Implementing Procedures and Maintaining Emergency Response Capability for Nuclear Facilities (ANS-3.8.3) | LLWRCC |
| 10 | Determining Design Basis Flooding at Power Reactor Sites (ANS-2.8) | ESCC |
| **NEXT 10 (Middle)** | | |
| 11 | Probabilistic Seismic Hazard Analysis (ANS-2.29) | ESCC |
| 12 | Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design (ANS-2.26) | ESCC |
| 13 | Criteria for Onsite Protective Actions During a Radiological Emergency (ANS-3.8.8) | LLWRCC |
| 14 | Design Requirements for New Fuel Storage Facilities at LWR Plants (ANS-57.3) | FWDCC |
| 15 | Radioactive Source Term for Normal Operation of Light Water Reactors (ANS-18.1) | LLWRCC |
| 16 | Criteria for Investigations of Nuclear Facilities Sites for Seismic Hazard Assessments (ANS-2.27) | ESCC |
| 17 | Nuclear Plant Reliability Assurance Program (RAP) (ANS-3.13) | LLWRCC |
| 18 | Requirements for Preoperational and Startup Testing (ANS-3.6) | LLWRCC |
| 19 | Integrated Safety Assessments for Fuel Cycle Facilities (ANS-57.11) | NRNFCC |
| 20 | Nuclear Power Plant Decommissioning Process (ANS-TBD) | FWDCC |

# ESCC Chairman's Report to the ANS Standards Board

## Tuesday, October 31, 2017 • Marriott Wardman Park Hotel, Washington, D.C.

**Projects in Consideration/Interest being Sought (2)**

- ANS-2.13, "Evaluation of Surface-Water Supplies for Nuclear Power Sites" (reinvigoration of historical standard ANS-2.13-1979 (R1989) (W1999))
- 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 ANS-2.19-1981 (R1990) (W2000))

**PINS in Development/Approval (7)**

- ANS-2.18, "Standards for Evaluating Radionuclide Transport in Surface Water for Power Sites" (new standard)
- ANS-2.22, "Environmental Radiological Monitoring at Nuclear Facilities" (new standard)
- ANS-2.26, "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design" (revision of ANSI/ANS-2.26-2004; R2010 (R2017))
- ANS-2.32, "Guidance on the Selection and Evaluation of Remediation Methods for Subsurface Contamination" (new standard being reinvigorated by interim chair)
- ANS-2.33, "Aquatic Ecological Surveys Required for Siting, Design, and Operation of Thermal Power Plants" (new standard—formerly designated ANS-18.4)
- ANS-3.16, "Meteorological Aspects of Wildland Fire Response" (proposed new standard)
- ANS-16.1, "Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure" (revision of ANSI/ANS-16.1-2003 (R2016))

**Standards in Development – Approved PINS (8)**

- ANS-2.8, "Determining External Flood Hazards for Nuclear Facilities" (reinvigoration of historical standard ANS-2.8-1992 (W2002)) (subsumed ANS-2.31)
- ANS-2.9, "Evaluation of Ground Water Supply for Nuclear Facilities" (reinvigoration of historical standard ANS-2.9-1980 (R1989)(W1999))
- ANS-2.16, "Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities" (new standard)
- ANS-2.25, "Surveys of Ecology Needed to License Nuclear Facilities" (reinvigoration of historical standard ANS-18.5-1982 (W1992); re-designated ANS-2.25)
- ANS-2.27, "Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments" (revision of ANSI/ANS-2.27-2008 (R2016))
- ANS-2.29, "Probabilistic Seismic Hazard Analysis" (revision of ANSI/ANS-2.29-2008 ( R2016))
- ANS-2.34, "Probabilistic Volcanic Hazard Assessment" (new standard)
- ANS-3.8.10, "Criteria for Modeling Real-time Accidental Release Consequences at Nuclear Facilities" (new standard)

**Standards at Ballot/Resolving Comments (3)**

- ANS-2.6-201x, "Guidelines for Estimating Present and Forecasting Future Population Distributions Surrounding Nuclear Facility Sites" (new standard)
- ANS-2.10-201x, "Criteria for Retrieval, Processing, Handling, and Storage of Records from Nuclear Facility Seismic Instrumentation" (supersedes ANS-2.10-2003 (W2013))
- ANS-2.15-2013 (R201x), "Criteria for Modeling and Calculating Atmospheric Dispersion of Routine Radiological Releases from Nuclear Facilities" (reaffirmation of ANSI/ANS-2.15-2013)

**Standard Recently Approved (1)**

- ANSI/ANS-2.26-2004 (R2017), "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design" (reaffirmation of ANSI/ANS-2.26-2004 (R2017))

**Delinquent Standards (5+ years since ANSI approval) (0)**

The ESCC has no delinquent standards.

**Responses to Inquiries (0)**

The ESCC has no open inquiries.

**Membership Changes (1)**

- Rebekah Krieg, PNNL, resigned from the committee and as Siting: Aquatic Ecology Subcommittee Chair

**Volunteer Staffing Needs**

| Staffing Need (member, chair, etc.) # of positions | Standard # | Date Need Identified (Estimated) | Priority (H or M)* | Date Need Filled | Source** | Date-Actions Taken to Fill Need (Estimated) |
|---|---|---|---|---|---|---|
| Members | ANS-2.3 | 2017 | H | | a, d, e, i | 2017 |
| Chair | ANS-2.9 | 2017 | L | | a, d, e | 2017 |
| Chair/Members | ANS-2.13 | pre-dates ESCC | L | | a, e | various 2015-current |
| Members | ANS-2.18 | pre-dates ESCC | M | | a, d, e | various 2015-current |
| Members | ANS-2.22 | pre-dates ESCC | H | | a, e | various 2015-current |
| Members | ANS-2.25 | pre-dates ESCC | M | | a, d, e | various 2015-current |
| Chair/Members | ANS-2.32 | pre-dates ESCC | L | | a, d, e | various 2015-current |
| Chair/Members | ANS-2.33 | 2017 | M | | a, d, e | 2017 |
| Members (commercial nuclear industry reps.) | ANS-2.34 | 2017 | H | | a, d, e | 2017 |
| Chair/Vice Chair | Aquatic Ecology SubC | 2017 | M | | a | 2017 |
| Vice Chair | Terrestrial Ecology SubC | 2014 | M | | a | 2014 |
| Vice Chair | General & Monitoring SubC | 2014 | M | | a | 2014 |

* High (H) or medium (M) priority based on priority of standard or reaffirmation time limit.

**a. Personal contact, b. standards manager (ANS staff), c. ANS SC referral, d. ANS publication, e. ANS website, f. Linked in post, g. conference speakers and paper authors, h. internet search, i other

# FWDCC Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park, Washington, D.C.**

**Standards in Development – Approved PINS (1)**

- 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)

**Standards at Ballot/Resolving Comments (1)**

- ANS-57.3, "Design Requirements for New Fuel Storage Facilities at LWR Plants" (reinvigoration of historical withdrawn standard) (Recirculation ballot closes 11/17/17)

**Standards Recently Approved (2)**

- ANSI/ANS-55.1-1992 (R2017), "Solid Radioactive Waste Processing System for Light-Water-Cooled Reactor Plants" (reaffirmation of ANSI/ANS-55.1-1992 (R2009)
- ANSI/ANS-57.8-1995 (R2017), "Fuel Assembly Identification" (reaffirmation of ANSI/ANS-57.8-1995 (R2011))

**Delinquent Standards (5+ years since ANSI approval) (0)**

The FWDCC has no delinquent standards.

**Responses to Inquiries Issued (0)**

The FWDCC has no open inquiries.

**Membership Changes**

David Hillyer was elected FWDCC Chair.

**Volunteer Staffing Needs**

| Staffing Need (Member, chair, etc.)# of positions | Standard # | Date Need Identified (Estimated) | Priority (H or M)* | Date Need Filled | Source** | Date-Actions Taken to Fill Need (Estimated) |
|---|---|---|---|---|---|---|
| Chair/Members | ANS-40.21 | pre-dates FWDCC | M | | e | various 2014 - current |
| Members | ANS-40.35 | pre-dates FWDCC | M | | e | various 2014 - current |
| Chair/Members | ANS-55.1 | pre-dates FWDCC | M | | d, e, f | various 2014 - current |
| Chair/Members | ANS-55.4 | pre-dates FWDCC | M | | d, e, f | various 2014 - current |
| Chair/Members | ANS-55.6 | pre-dates FWDCC | M | | d, e, f | various 2014 - current |
| Chair/Members | ANS-57.1 | pre-dates FWDCC | M | | e | various 2014 - current |
| Members | ANS-57.5 | pre-dates FWDCC | M | | d, e | various 2014 - current |
| Members | ANS-57.8 | pre-dates FWDCC | M | | d, e | various 2014 - current |
| Chair/Members | ANS-57.10 | pre-dates FWDCC | M | | e | various 2014 - current |
| Chair/Vice Chair | Decommissioning (Commercial & Research Facilities) SubC | 2014 | M | | e | various 2014 - current |
| Chair/Vice Chair | High Level, GTCC, Low Level, & Mixed Waste Subcommittee | 2014 | M | | e | various 2014 - current |
| Vice Chair | New and Used Fuel (Design Only) SubC | 2014 | M | | e | various 2014 - current |

* High (H) or medium (M) priority based on priority of standard or reaffirmation time limit.

**a. Personal contact, b. standards manager (ANS staff), c. ANS SC referral, d. ANS publication, e. ANS website, f. Linkedin post, g. conference speakers and paper authors, h. internet search, i. other

# JCNRM Co-Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park Hotel, Washington, D.C.**

**JCNRM Leadership**

The JCNRM is managed by a chair and vice chair representing each society. Robert Budnitz and Rick Grantom serve as co-chairs for ANS and ASME respectively. Dennis Henneke and Pamela Nelson serve as co-vice chairs for ANS and ASME respectively.

**ASME/ANS RA-S**

Work on the revision of the JCNRM's main flagship PRA standard, ASME/ANS RA-S-2008, has been under way since the release of Addenda B in 2013. This next version will be called a "new edition." This new edition 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 technical work on the new edition is expected to be complete toward the end of calendar 2017. A review and comment ballot should be issued by the end of the year followed by a consensus committee ballot the first quarter of 2018.

The next version of the requirements for seismic PRA at power has been approved by the JCNRM to be issued on an expedited schedule through a case. It should be noted that consensus was reached with three maintained negatives. A significant effort was made to resolve the objections, but in the end, no compromise was found. Approval of both standards boards was achieved permitting the release of the Case in September 2017.

**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 Low Power and Shutdown Methodology for PRA 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).
- Five pilot applications are now under way at operating nuclear power plants.
- The JCNRM approved a one-year extension of the trial use period to allow for pilot findings to be addressed and for the standard to incorporate changes to the next edition of ASME/ANS RA S.

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 Ray Schneider.
- This project began in 2005. Ray Schneider currently chairs this writing group.
- 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.
- The JCNRM approved a one-year extension of the trial use period to allow for pilot findings to be addressed and for the standard to incorporate changes to the next edition of ASME/ANS RA S.

ASME/ANS RA-S-1.3-2017, "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, who has chaired this effort since its inception in 2005.

- Approval of the draft for trial use has been reached by the JCNRM; both societies' standards boards have approved.
- The standard was published on July 13, 2017, 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-1.4-2013, "Advanced Non LWR PRA Standard"

- The writing group is led by Karl Fleming, under way 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. The JCNRM is currently considering the possibility to extend this trial period for another year.
- Multiple pilots have been completed.
- The working group is currently reviewing comments from the trial use of the standard.
- 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. The revision is expected to be completed by early 2018.

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

- The project was initiated in 2007. Timothy Wheeler is the current writing group chair.
- The JCNRM calls this the "ALWR PRA Standard."
- A JCNRM ballot was held in spring 2013. Additional changes were made to the draft, in part to accommodate applicability to small modular reactors that use light-water coolant.
- The writing group has incorporated into the draft additional comments from the NRC related to the NRC's ALWR Interim Staff Guidance.
- A ballot readiness review was conducted; the ALWR Working Group and the readiness review team have come to an agreement. The draft is expected to be issued to the JCNRM for ballot in October/November 2017.
- The ALWR appendix will be issued initially for trial use and will 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 JCNRM's activities take place under the oversight of the ANS Standards Board and the ASME Board on Nuclear Codes and Standards. Both Boards must approve all important JCNRM standards actions and administrative changes. Both Boards consider the JCNRM to be a "consensus committee" reporting through the usual channels. The merger to create the JCNRM 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. This structure has worked well and there have not been any conflicts between the two societies on anything of substance.

The JCNRM "business" aspect was finalized with the signing of a licensing agreement and a copyright agreement by the managements of both Societies on June 23, 2016. The arrangement consists of ANS assumption of the administrative work of editing and publishing all new JCNRM standards and the related expenses; and ASME assumption of the work of arranging meetings, serving as JCNRM Secretary, managing the ballot process, and submitting ANSI documents as needed as well as a few other administrative tasks, and the related expenses. The JCNRM is obligated to follow the "Procedures for ASME Codes and Standards Development Committees." Supplemental procedures to address specifics unique to the JCNRM are in development. Once approved by the JCNRM, the supplemental procedures will be provided to the two societies' oversight boards for approval.

**Standards Inquiries and Delinquent Standards**

The JCNRM does not have any delinquent standards in need of maintenance, nor any other active inquiries at this time.

**Volunteer Staffing Needs**

The JCNRM main committee and all subordinate groups are fully staffed.

**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 ballot in early calendar 2018. 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 issue the ALWR PRA standard under development discussed in the opening section of this report. This is a major effort, involving volunteer resources.

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.

Finally, the JCNRM has been approached by groups in several countries about forming what we are calling "JCNRM International Working Groups." The Chinese have already formed an IWG that the JCNRM has approved, a new IWG in Japan is in the final stages of becoming a formal activity, and another new IWG is in the process of forming in Korea. The Canadians have also inquired about the possibility. Each IWG consists of several PRA and risk-management experts in the respective country who have agreed to perform reviews of JCNRM draft standards, to perform trial applications of our standards as appropriate, to propose changes to our standards or other new JCNRM initiatives, and generally to act as an "arm" of the JCNRM in the respective country. The Chinese IWG and the new Japanese IWGs consist of a couple of dozen engineers each. An IWG will hold physical meetings, if at all, in the foreign country, and its proceedings will likely take place in the foreign language. Each IWG has a chair designated by them but approved by the JCNRM, and each IWG chair will likely be appointed as a voting member of the JCNRM itself, although that decision will be taken on a case-by-case basis. (We have insisted that the English language skills of each IWG chair be acceptably competent. This has not been a problem at all so far.) The JCNRM sees the formation of IWGs as a way to involve foreign experts in an organized activity that can assist the JCNRM in its technical work. The benefit to our foreign colleagues is early access to our work products and an opportunity to influence them technically at a relatively early stage.

**Financial Support**

For several years until it ended in 2013, a grant to the ANS from the U. S. Nuclear Regulatory Commission (NRC) 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, for a three-year period. This 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. A two-year extension to use grant funds through February 3, 2018, was approved by the NRC on July 18, 2017.

# LLWRCC Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park, Washington, D.C.**

**PINS in Development (4)**

- ANS-3.15, "Cybersecurity for Nuclear Facilities" (new standard - title TBD)
- ANS-56.1, "Containment Hydrogen Control" (new standard – title TBD)
- ANS-58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture" (reinvigoration of historical standard)
- ANS-60.1, "Export Control Standard" (new standard – title TBD)

**PINS in Approval/Comment Resolution (2)**

- ANS-30.3-201x, "Advanced Light-Water Reactor Risk-Informed Performance-Based Design Criteria and Methods" (new standard)
- ANS-59.3, "Nuclear Safety Criteria for Control Air" (reinvigoration of historical standard)

**Standards in Development – Approved PINS (4)**

- 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) ****LLWRCC members proposed a redirection of the emergency preparedness standards to new nonLWR plants. 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-56.8, "Containment Leakage Testing Requirements" (revision of ANSI/ANS-56.8-2002 (R2016))
- ANS-58.8, "Time Response Design Criteria for Safety-Related Operator Actions" (revision of ANSI/ANS-58.8-1994 (R2017))

**Standards at Ballot/Resolving Comments (3)**

- ANS-3.5-201x, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" (revision of ANSI/ANS-3.5-2009)
- ANS-51.10-201x, "Auxiliary Feedwater System for Pressurized Water Reactors" (revision of ANSI/ANS-51.10-1991 (R2008))
- ANS-58.3-1992 (R201x), "Physical Protection for Nuclear Safety-Related Systems and Components" (reaffirmation of ANSI/ANS-58.3-1992 (R2008))

**Standards Recently Approved (3)**

- ANSI/ANS-3.2-2012 (R2017), "Managerial, Administrative, and Quality Assurance Controls for the Operational Phase of Nuclear Power Plants" (reaffirmation of ANSI/ANS-3.2-2012)
- ANSI/ANS-58.8-1994 (R2017), "Time Response Design Criteria for Safety-Related Operator Actions" (reaffirmation of ANSI/ANS-58.8-1994 (R2008))
- ANSI/ANS-58.14-2011 (R2017), "Safety and Pressure Integrity Classification Criteria for Light Water Reactors" (reaffirmation of ANSI/ANS-58.14-2011)

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

- ANSI/ANS-3.5-2009, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" (revision issued for reballot)
- ANSI/ANS-51.10-1991 (R2008) "Auxiliary Feedwater System for Pressurized Water Reactors" (revision resolving ballot comments)
- ANSI/ANS-58.3-1992 (R2008), "Physical Protection for Nuclear Safety-Related Systems and Components" (reaffirmation resolving ballot comments)

**Responses to Inquiries in Development/Approval (1)**

- An inquiry was received 8/17/17 on ANSI/ANS-3.1-1993, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants."

**Membership Changes**

- Mark Colby, Global Nuclear Fuels resigned as the Light Water Reactor and Reactor Auxiliary Systems Design Subcommittee Chair but remains an at-large member of the LLWRCC.
- Gary Corpora retired from Westinghouse and the LLWRCC. Corpora represented existing plants. Timothy Meneely, also with Westinghouse, remains on the LLWRCC to represent new plants.
- James Riley retired from the Nuclear Energy Institute and as a liaison to the LLWRCC; no NEI liaison was appointed.

**Volunteer Staffing Needs**

| Staffing Need (Member, chair, etc.)# of positions | Standard # | Date Need Identified (Estimated) | Priority H or M)* | Date Need Filled | Source** | Date-Actions Taken to Fill Need (Estimated) |
|---|---|---|---|---|---|---|
| Members | ANS-3.13 | 2014 | M | | d, e | various 2014-current |
| Members | ANS-51.10 | 2014 | M | | d, e, f | various 2014-current |
| Members | ANS-56.1 | 2014 | M | | d, e, f | various 2014-current |
| Members | ANS-58.2 | pre-dates LLWRCC | M | | e, f | various 2014-current |
| Chair/Members | ANS-58.3 | pre-dates LLWRCC | M | | e, f | various 2014-current |
| Chair/Members | ANS-58.6 | 2014 | M | | e | various 2014-current |
| Members | ANS-58.9 | 2014 members | M | | d, e | various 2014-current |
| Chair/Members | ANS-58.11 | pre-dates LLWRCC | M | | e | various 2014-current |
| Chair/Members | ANS-59.51 | pre-dates LLWRCC | M | | d, e, f | various 2014-current |
| Chair/Members | ANS-59.52 | pre-dates LLWRCC | M | | d, e, f | various 2014-current |
| Members | ANS-60.1 | 2016 | M | | d, e | various 2016-current |
| Chair | LWR & Reactor Auxiliary Systems Designs SubC | 2017 | M | | e | 2017 |
| Chair | Power Generation & Plant Support Systems SubC | 2017 | M | | e | 2017 |
| | | | | | | |

* High (H) or medium (M) priority based on priority of standard or reaffirmation time limit.

**a. Personal contact, b. standards manager (ANS staff), c. ANS SC referral, d. ANS publication, e. ANS website, f. Linkedin post, g. conference speakers and paper authors, h. internet search, i. other

# NRNFCC Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park, Washington, D.C.**

**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**

There have been no recently changes to membership.

**Volunteer Staffing Need**

| Staffing Need (Member, chair, etc.)# of positions | Standard # | Date Need Identified | Priority (H or M)* | Date Need Filled | Source** | Date-Actions Taken to Fill Need (Estimated) |
|---|---|---|---|---|---|---|
| Chair | ANS-58.16 | 2016 | M | | | e |

* High (H) or medium (M) priority based on priority of standard or reaffirmation time limit.

**a. Personal contact, b. standards manager (ANS staff), c. ANS SC referral, d. ANS publication, e. ANS website, f. Linkedin post, g. conference speakers and paper authors, h. internet search, i. other

# NCSCC Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park, Washington, D.C.**

**PINS in Approval/Resolving Comments (1)**

- ANS-8.1-201x, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors" (revision of ANSI/ANS-8.1-2014)

**Standards in Development – Approved PINS (8)**

- ANS-8.3, "Criticality Accident Alarm System" (revision of ANSI/ANS-8.3-1997 (R2012))
- ANS-8.7, "Nuclear Criticality Safety in the Storage of Fissile Materials" (revision of ANSI/ANS-8.7-1998 (R2012))
- ANS-8.12, "Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors" (revision of ANSI/ANS-8.12-1987 (R2016))
- ANS-8.20, "Nuclear Criticality Safety Training" (revision of ANSI/ANS-8.20-1991 (R2015))
- ANS-8.23, "Nuclear Criticality Accident Emergency Planning and Response" (revision of ANSI/ANS-8.23-2007 (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)

**Standards @ Ballot/Resolving Comments (3)**

- ANS-8.7-1998 (R201x), "Nuclear Criticality Safety in the Storage of Fissile Materials" (reaffirmation of ANSI/ANS-8.7-1998 (R2012))
- ANS-8.21, "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors" (revision of ANSI/ANS-8.21-1995 (R2011))
- ANS-8.24-201x, "Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations" (revision of ANSI/ANS-8.24-2007 (R2012))

**Standards Recently Approved (3)**

- ANSI/ANS-8.3-1983 (R2017), "Criticality Accident Alarm System" (reaffirmation of ANSI/ANS-8.3-1997 (R2012))
- ANSI/ANS-8.5-1996 (R2017), "Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material" (reaffirmation of ANSI/ANS-8.5-1996 (R2012))
- ANSI/ANS-8.6-1983 (R2017), "Safety in Conducting Subcritical Neutron-Multiplication Measurements In Situ" (reaffirmation of ANSI/ANS-8.6-1983 (R2010))

**Delinquent Standards – 5+ Years Since ANSI Approval (3)**

- ANSI/ANS-8.21-1995 (R2011), "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors" (revision @ ballot)
- ANSI/ANS-8.23-2007 (R2012), "Nuclear Criticality Accident Emergency Planning and Response" (revision in development)
- ANSI/ANS-8.24-2007 (R2012), "Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations" (revision @ ballot)

**Responses to Inquiries in Development (0)**

The NCSCC has no open inquiries.

**Membership Changes**

There have been no recent membership changes on the NCSCC.

**Volunteer Staffing Needs**

| Staffing Need (Member, chair, etc.)# of positions | Standard # | Date Need Identified (Estimated) | Priority (H or M)* | Date Need Filled | Source** | Date-Actions Taken to Fill Need (Estimated) |
|---|---|---|---|---|---|---|
| Chair | ANS-8.3 | 2017 | M | | e | 2017 |
| Chair | ANS-8.17 | 2017 | M | | e | 2017 |

* High (H) or medium (M) priority based on priority of standard or reaffirmation time limit.

**a. Personal contact, b. standards manager (ANS staff), c. ANS SC referral, d. ANS publication, e. ANS website, f. Linkedin post, g. conference speakers and paper authors, h. internet search, i. other

# RARCC Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park, Washington, D.C.**

**Standards in Development – Approved PINS (6)**

- ANS-1, "Conduct of Critical Experiments" (revision of ANSI/ANS-1-2000 (R2012))
- ANS-15.22, "Classification of Structures, Systems and Components for Research Reactors" (new standard)
- ANS-20.1, "Nuclear Safety Criteria and Design Process for Fluoride Salt-Cooled High-Temperature Reactor Nuclear Power Plants" (new standard)
- ANS-20.2, "Nuclear Safety Design Criteria and Functional Performance Requirements for Liquid-Fuel Molten Salt Reactor Nuclear Power Plants" (new standard)
- ANS-30.1, "Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs" (new standard)
- ANS-30.2, "Structures, Systems, and Component Classification for Nuclear Power Plants" (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 (0)**

There have been no RARCC standards approved in 2017.

**Delinquent Standards (5+ years since ANSI approval) (0)**

The RARCC has no delinquent standards.

**Responses to Inquiries (0)**

The RARCC has no open inquiries.

**Staffing Needs**

The RARCC has no staffing needs.

**Membership Changes (0)**

There have been no recent membership changes.

# SRACC Chairman's Report to the ANS Standards Board

**Tuesday, October 31, 2017 • Marriott Wardman Park, Washington, D.C.**

**PINS in Development/Approval (2)**

- ANS-6.1.1, "Neutron and Gamma-Ray Fluence-To-Dose Factors" (reinvigoration of historical standard ANSI/ANS-6.1.1-1991)
- ANS-10.4, "Verification and Validation of Non-Safety-Related Scientific and Engineering Computer Programs for the Nuclear Industry" (revision of ANSI/ANS-10.4-2008 (R2016))

**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—new standard)
- ANS-19.3.4, "Determination of Thermal Energy Deposition Rates in Nuclear Reactors" (revision of ANS-19.3.4-2002 (R2017))ANS-19.6.1, "Reload Startup Physics Tests for Pressurized Water Reactors" (revision of ANSI/ANS-19.6.1-2016)
- ANS-19.9, "Delayed Neutron Parameters for Light Water Reactors" (new standard)
- ANS-19.12, "Nuclear Data for the Production of Radioisotope" (new standard)

**Standards at Ballot/Resolving Comments (0)**

The SRACC has no open standards ballots.

**Standards Recently Approved (5)**

- ANSI/ANS-10.5-2006 (R2017), "Accommodating User Needs in Scientific and Engineering Computer Software Development" (reaffirmation of ANSI/ANS-10.5-2006 (R2011))
- ANSI/ANS-19.3-2011 (R2017), "Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors" (reaffirmation of ANSI/ANS-19.3-2011)
- ANSI/ANS-19.3.4-2002 (R2017), "The Determination of Thermal Energy Deposition Rates in Nuclear Reactors" (reaffirmation of ANSI/ANS-19.3.4-2002 (R2008))
- ANSI/ANS-19.4-2017, "A Guide for Acquisition and Documentation of Reference Power Reactor Physics Measurements for Nuclear Analysis Verification" (historical revision of ANSI/ANS-19.4-1976 (R2000)–new standard)
- ANSI/ANS-19.11-2017, "Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors" (revision of ANSI/ANS-19.11-1997 (R2011))

**Standard Published (1)**

- ANSI/ANS-19.4-2017, "A Guide for Acquisition and Documentation of Reference Power Reactor Physics Measurements for Nuclear Analysis Verification" (historical revision of ANSI/ANS-19.4-1976 (R2000)–new standard)

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

- ANSI/ANS-5.4-2011, "Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel (maintenance requested)
- ANSI/ANS-10.2-2000 (R2009), "Portability of Scientific and Engineering Software" (SRACC concurred with working group's decision to allow the standard to be administratively withdrawn; update to be initiated when technology stable)
- ANSI/ANS-19.1-2002 (R2011), "Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors" (revision in development)
- ANSI/ANS-41.5-2012, " Verification and Validation of Radiological Data for Use in Waste Management and Environmental Remediation" (WGC position open; maintenance required)

**Responses to Inquiries in Development (0)**

The SRACC has no open inquiries.

**Membership Changes**

There have been no recent membership changes.

**Volunteer Staffing Needs**

| Staffing Need (Member, chair, etc.)# of positions | Standard # | Date Need Identified (Estimated) | Priority (H or M)* | Date Need Filled | Source** | Date-Actions Taken to Fill Need (Estimated) |
|---|---|---|---|---|---|---|
| Chair/Members | ANS-6.3.1 | 2015 | M | | e | various 2015-current |
| Members | ANS-10.4 | 2017 | M | | d, e | 2017 |
| Members | ANS-19.3.4 | 2017 | M | | d, e | 2017 |
| Chair/Members | ANS-19.8 | pre-dates SRACC | M | | e | various 2014-current |
| Chair/Members | ANS-19.12 | pre-dates SRACC | M | | d, e | various 2014-current |
| Chair/Members | ANS-41.5 | 2016 | M | | e | various 2015-current |

* High (H) or medium (M) priority based on priority of standard or reaffirmation time limit.

**a. Personal contact, b. standards manager (ANS staff), c. ANS SC referral, d. ANS publication, e. ANS website, f. Linkedin post, g. conference speakers and paper authors, h. internet search, i. other

# ANS Standards Board Task Groups
# (Revised ~~11-16-16~~11/17/17)**
## NOTE: Additional changes to be made by SB Chair S. Arndt

### 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~~manager.*

Steven Arndt, Chair*
George Flanagan~~, Chair*~~
Prasad Kadambi
Chuck Moseley
Steve Stamm
Patricia Schroeder

*NOTE: Current SB Chair = Policy TG Chair*

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~~**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.*~~

~~OPEN, Chair*~~
~~Jim August (Southern Nuclear Co.)~~
~~Jim Riley (NEI)~~

**Comment [PS2]:** Dissolved by motion at the 6/13/2017 Standards Board meeting

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### 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*
Amir Afzali
Ed Wallace (SB)

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Stanley Levinson (JCNRM/SCoRA)

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**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 , Chair (SB)*
Jeff Brault (AGS)

**Comment [PS3]:** Additional members need to be appointed.

**Comment [PS4]:** Jeff Brault agreed to this position although he has never been on the Standards Board formally. I was told to remove him because he has not participate on any calls or meetings. Again, your call.

---

~~**Sales Task Group**~~

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

~~David Sachs, Chair (SB)*~~
~~Steve Stamm (SB)~~

**Comment [PS5]:** This task group was dissolved by motion at the 10/2017 Standards Board meeting.

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* 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 (updated 11/17/17)

NOTE: List will need updating/verification by new External Communications TG Chair

| Name of SDO/and Other Related Organizations | Standards Committee Liaison | Link Adequate Y or N? | Next Actions |
|---|---|---|---|
| ACI | | N | Need assignment |
| AISC | | N | Need assignment |
| AGS | Jeffery Brault (NRNFCC) | Y | |
| AIChE | | N | Need assignment |
| ANSI & ISO TC 85 SC 6 | Prasad Kadambi (SB) | Y | |
| ASCE | Carl Mazzola | Y | |
| ASME NQA | Chuck Moseley (LLWRCC) | Y | |
| ASTM-C26 | | N | Need assignment |
| EPRI | Andrew Sowder (SB) | Y | |
| IEEE | | N | Need assignment |
| INMM | Ronald Knief (NCSCC) | Y | |
| INPO | | N | Need assignment |
| HPS | Christopher Gramham (SRACC) | Y | |
| JCNRM/SCoRA | Stanley Levinson (SB) | Y | |
| NCRP | | N | Need assignment |
| NEI | Russ Bell (SB) | Y | |
| NFPA | Bernie Till | Y | On NFPA Tech Com for Fire Protection for Nuclear Facilities |
| WENRA | Robert Budnitz (SB) | 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-C26: 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

WENRA: Western European Nuclear Regulators Association