American Nuclear Society (ANS)
Standards Board (SB) Minutes
Omni Shoreham Hotel, Washington D.C.
November 1, 2011

Members Present:
Donald J. Spellman, *Standards Board Chair, Oak Ridge National Laboratory*
James K.August, *Standards Board Vice Chair, CORE, Inc.*
*Robert J. Budnitz, *RISC Chair*, *Lawrence Berkeley National Laboratory*
Robert D. Busch, *N16 Chair, University of New Mexico*
**Andrew G. Cook, *Member at Large*, *AREVA NP*
William C. Gattoni, *Member at Large, Burns and Roe*
Calvin M. Hopper, *Observer, Individual*
N. Prasad Kadambi, *ISO & ANSI Liaison, Individual*
James Mallay, *Observer, Individual*
Herbert W. Massie, *Member at Large, Defense Nuclear Facilities Safety Board*
Carl A. Mazzola, *NFSC Chair, Shaw Environmental and Infrastructure, Inc.*
Caroline McAndrews, *Southern California Edison*
Charles H. (Chuck) Moseley, *Member at Large, Individual*
Mathew M. Panicker, *Member at Large, U.S. Nuclear Regulatory Commission*
Tawfik M. Raby, *N17 Chair, National Institute of Standards & Technology*
James Riley, *Liaison, Nuclear Energy Institute*
R. Michael Ruby, *Member at Large, Individual*
Patricia A. Schroeder, *Standards Board Secretary, American Nuclear Society*
Steven L. Stamm, *Member at Large, Shaw Nuclear Services*
William M. Turkowski, *Member at Large, Westinghouse*

*participated by phone
**briefly attended

Members Absent:
Peter S. Hastings*, Member at Large*, *Babcock & Wilcox*
Walter M. Justice*, Member at Large, Tennessee Valley Authority*
Robert D. (David) Sachs, *Member at Large, Individual*

Guests:
Ambler Thompson, *National Institute of Standards and Technology*
William Reuland, *Individual*

1. Welcome and Introductions
Chairman Donald Spellman called the meeting to order and introductions were made.

2. Standards Board Agenda Restructuring and Approval of Agenda
Donald Spellman reviewed the agenda for the meeting, and it was approved as presented. Spellman took a few minutes to explain the restructuring of the agenda.

3. Standards Board Chair's Report

A. Presentations to be Made to the ANS Board of Directors (BOD)

Donald Spellman reviewed the presentations that he prepared for Thursday's BOD meeting. The first presentation (Attachment A) was an overview of the standards program requested by the BOD. The second presentation was a report of Standards Committee activities (Attachment B). Spellman provided members insight into statements made in the report of activities to the BOD. He posed a question to the SB about writing standards for beyond design basis and whether that was appropriate. The sentiment was that the Standards Committee needed to consciously make this decision in the development of each standard and coordinate with industry. Since the decision may set a precedent for development or revision of a number of ANS standards, further review would be required and a recommendation made to the SB.

B. BOD Motion Request

Spellman provided a copy of a request for action that he has presented to the ANS BOD requesting that adequate space be provided to hold consensus committee meetings on site at ANS annual and winter meetings. The request was not discussed but is provided as Attachment C.

4. Current Topics

A. Standards Board Task Groups

1) Membership/Chairs (for reference, see task group list – Attachment D)

Spellman discussed the formation of 5 SB task groups to encourage more direct activity from each of the SB members related to the issues anticipated to be of concern to the Board in the near future.

The suggested task groups were:

1. Communications
2. Policy
3. Priority
4. Informatin Technology
5. Sales/Revenue

Spellman explained that the International Organization of Standardization (ISO) Technical Committee (TC) 85 had several subcommittees that are directly related to ANS standards subject matters. His intent for the Communications Task Group was to increase communication with TC 85 subcommittees, other standards development organizations (SDOs), and industry.

The Policy Task Group would be created to improve the link from the Standards Board to ANS divisions and standing committees and make recommendations to the SB related to overall policy decisions.

The Priority Task Group, in coordination with the Nuclear Energy Coordination Collaborative (NESCC), would help set the direction of ANS standards and determine those standards that are an immediate or longer term need based on industry requirements.

The Information Technology (IT) Task Group would work to increase IT access such as an online standards volunteer database and electronic balloting. Spellman explained that a proposal was in works to share the U.S. Nuclear Regulatory Commission's (NRC's) multiple use live document sharing software – Go to Meetings.

The last group, the Sales/Revenue Task Group, was tasked with increasing ANS standards program sales/revenue. There was a brief discussion of the current areas of revenue and potential activities to generate new revenue. Members acknowledged the need to expedite development of standards to capitalize sales on industry needs.

Spellman asked if members were satisfied with their task group assignments or if any wanted to be reassigned. Carl Mazzola asked to be moved to the Communications Task Group. Spellman noted that it was intended for the task groups to work on their assignments between regular SB meetings and discuss progress and needs at the SB meetings.

Action Item 11/11-01: Donald Spellman to reassign Carl Mazzola to the Communications Task Group. Due Date: November 2011

A discussion occurred about elevating standards to its own department at the Society as a way to bring attention to standards and garner more direct support from management. While the Society's departmental organization placed standards within the Scientific Publication Department, Spellman felt that since the Standards Board (SB) was a standing committee of the Society, it should be treated comparable to other standing committees and professional divisions not purely an administrative function. Spellman would continue this discussion with ANS management through the SB Policy Task Group.

In conclusion, Spellman stated that nuclear technology was moving forward and we, the Standards Committee, needed to move with it.

2) Next Six Months Activities
Spellman requested that a scope be developed for each task group and recommended that a teleconference be held in the January/February time frame to report on task group activities.

Action Item 11/11-02: Task groups to prepare a scope for proposed group activities and goals for the next six months to be promulgated prior to and discussed at the January/February telecon. Due Date: February 2012

Spellman provided copies of a presentation that he had prepared for a technical session to be given Wednesday afternoon at the ANS meeting on standards activities related to future multinational small modular reactors. The presentation was provided as thought ideas for the task groups.

<u>B. Discussion of Joint Committee on Nuclear Risk Management (JCNRM) Scope</u>
Spellman referred members to the JCNRM scope as presented in the Memorandum of Understanding (MOU) and accompanying tables. (See Attachment E) He confirmed that the SB agreed at the last meeting to support the formation of the JCNRM with the understanding that revenue sharing and liability would be handled between the two societies' management. Until these issues were resolved, the JCNRM cannot be formally approved.

Spellman believed that the proposed Risk Applications Standards Committee (RASC) would include the scope excluded under the JCNRM Tables 2 and 3 accompanying the MOU. The application of the tables was discussed in terms of industry need for specific standards. It was explained that Table 1 was clearly within the scope of the JCNRM; Table 2 could be within the responsibility of the JCNRM or another of the nuclear SDOs; Table 3 was likely within the scope of the ANS. That way, JCNRM could focus on risk management and the nuclear SDOs could retain their focus on "application" of risk management tools. Robert Budnitz reiterated

that all JCNRM projects would require approval of both societies prior to initiation. Budnitz felt that the clarification of the proposed RASC scope was not in conflict with the JCNRM's scope. James Mallay thought that Budnitz made an excellent case that the JCNRM could take care of the needs for all probabilistic risk assessment (PRA) standards. Spellman added that the proposed RASC was not a PRA committee and would not write PRA management standards; RASC was intended to develop and maintain risk application standards. ANS would still be responsible for deterministic, risk-informed, and performance-based design standards and the criteria for application of PRA within those standards.

Spellman requested that the SB task group on policy consider the proposed restructuring of the consensus committees including the addition of the proposed RASC and develop a recommendation for SB approval. The policy task group was directed to augment the group with needed expertise as appropriate.

The following motion was made:

> **MOTION:**
> The SB recognize the JCNRM as an ANS consensus committee under the direction of the ANS Standards Board and to approve the JCNRM MOU.

The motion was approved unanimously, however, it was recognized that Tawfik Raby, who was opposed to the JCNRM, was not in attendance.

In discussion on the motion, members acknowledged that revenue/expense sharing and liability issues were the responsibility of ANS management.

C. RASC: Revision to ANS Risk Informed Standards Committee (RISC)
Discussed under 4B, Formation of the JCNRM, above. The proposed RASC scope is provided as Attachment F in the draft RASC Bylaws.

D. Consensus Committee (CC) Chair Reports (Attachments G – J)
(Last six months activities (including action items); next six months activities; longer term plans)
Spellman explained that the intent of the consensus committee reports was primarily to update the SB on significant progress and to request direction as needed. In anticipation that more of the SB agenda in the future would be dedicated to SB task group activities, it was felt not beneficial to provide detail on the development of all standards. The written reports from CC chairs would serve this purpose.

RISC Chair, Robert Budnitz, provided the members an update on the RISC activities. He stated that there were no problems. Although not formally approved, the American Society of Mechanical Engineers Committee on Nuclear Risk Management and RISC were working well together as a joint committee. A written report is provided as Attachment G with full details of committee activities.

N16 Chair, Robert Busch, acknowledged a recent inquiry received on ANSI/ANS-8.3-1997 (R2003), "Criticality Accident Alarm System," had taken longer than he anticipated to prepare a response. An attempt was made to contact past working group members, but in the long run, sufficient past members were not available. The current working group was now preparing a response for approval of the ANS-8 Subcommittee. A report of N16 standards activities is provided as Attachment H.

In the absence of the N17 Chair, Tawfik Raby, and the NFSC Chair, Carl Mazzola, Donald Spellman directed members to the reports provided in the meeting materials as Attachments I and J respectively.

5. Liaison Reports
(Liaison reports are only necessary from those members who have information to report on activities from other committees.)

James August provided the committee an update on NESCC activities. He explained that the NESCC would be providing input on the priority of standards for development. Spellman suggested that the SB communication group would feed NESCC input from ANS. Spellman added that the hope would be for the NESCC to determine a few standards that were deemed of high priority to focus on with funding to support if needed.

Prasad Kadambi noted that ISO TC85 Subcommittee (SC) 6 was meeting Thursday and Friday of this week in D.C. His role would be as overall U.S. Advisor for SC6. He explained that a request was made of SC6 to address beyond design basis events. Kadambi would have more to report at the next meeting.

Charles Moseley reported that the last Nuclear Risk Management Coordinating Committee (NRMCC) meeting was held in February of 2012. At the time, there was consideration of dissolving the NRMCC as some members thought the formation of the JCNRM would eliminate the need for coordination. Members came to the decision that the NRMCC's broader membership was important to retain in the coordination of PRA standards for the industry. The next NRMCC meeting was tentatively planned for later November 2011.

6. Outstanding Action Items
Open action items were reviewed and closed if appropriate. Action Item 11/10-05 was reassigned to the policy task group. Charles Moseley suggested a letter be prepared under the signature of the SB Chair in recognition of Michael Wright's contribution as well as a letter to be prepared to recognize Richard Black's support of ANS standards.

Action Item 11/11-03: Donald Spellman to prepare a letter to Michael Wright expressing the Standards Committee appreciation of his participation. Due Date: December 2011

Action Item 11/11-04: Donald Spellman to prepare a letter to Richard Black expressing the Standards Committee appreciation of his support. Due Date: December 2011

7. Other Business

A. Administrative Items
The staff and sales report were provided for information. There were no open ballots presented. The reports are available as Attachment K and L respectively.

B. Consensus Committee Restructuring Proposal
Spellman referred member to his spreadsheet on consensus committee restructuring -- See Attachment M. Spellman explained his reassignment of subcommittees and the logic behind it. He stated that the spreadsheet was conceptual and would require input from consensus committee chairs.

Action Item 11/11-05: Consensus committee chairs and subcommittee chairs (if desired) to provide input to the SB Policy Task Group related to the proposed restructuring.
Due Date: January 2012

C. Federal Agency Participation Report

The Federal Agency Participation Report was distributed prior to the meeting for members' information.

8. Adjournment

The meeting was adjourned at 2:24 pm Eastern.

Attachment A

Presented to: ANS Board of Directors

Washington, D.C.

November 3, 2011

American Nuclear Society Standards

Donald J. Spellman

Chair, Standards Board

American Nuclear Society

ANS: Consensus Standards

The mission of the ANS Standards Committee is to develop voluntary consensus standards to be certified by the American National Standards Institute (ANSI) as American National Standards.

The ANSI has served as administrator and coordinator of the US private sector voluntary standardization system and represents the US on international standards committees including ISO and IEC.

ANS Standards: Scope

The ANS Standards Committee is responsible for the development and maintenance of standards that address the design, analysis, and operation of components, systems, and facilities related to the application of nuclear science and technology.

The scope includes standards in the following areas:

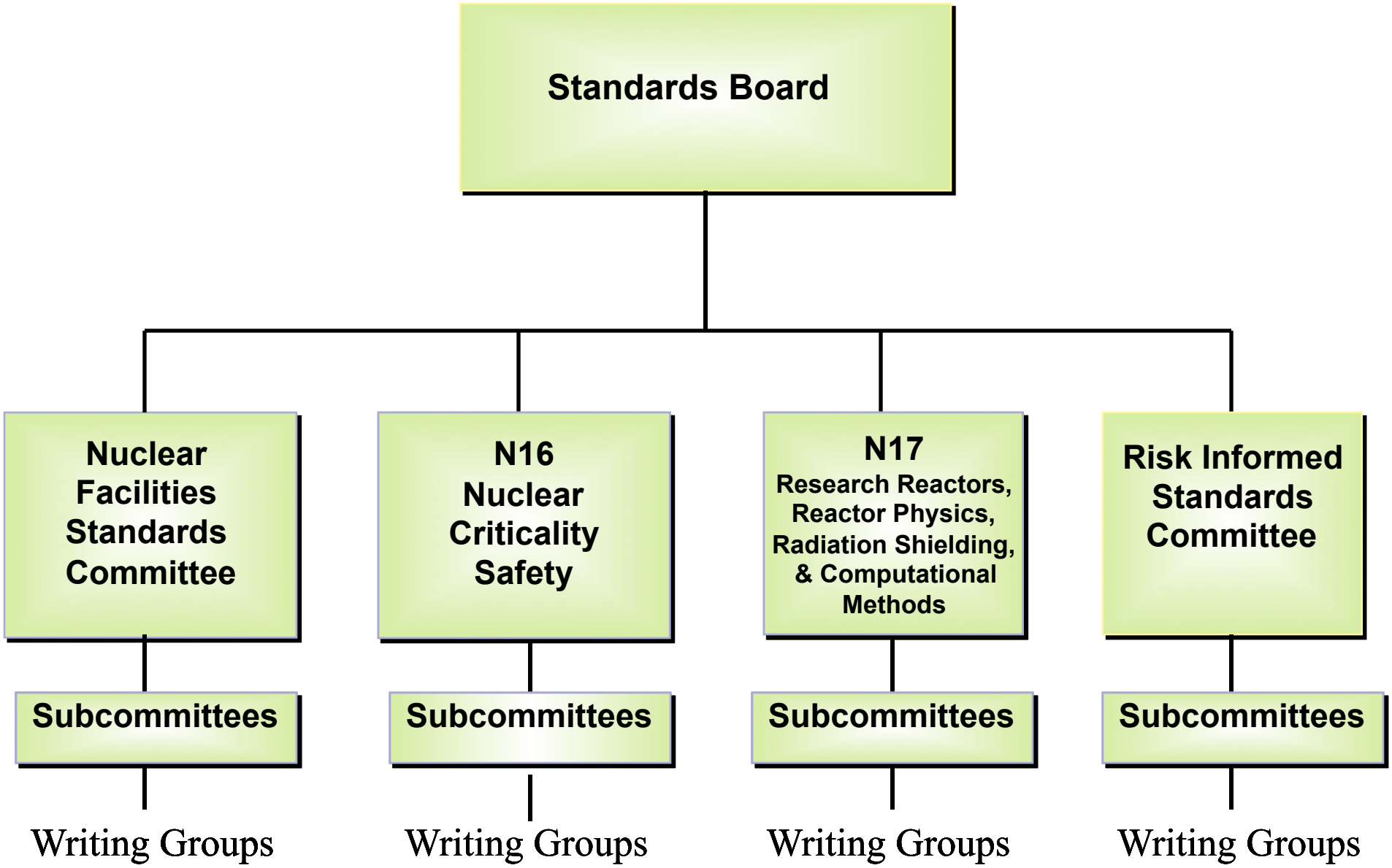
- *Nuclear criticality safety*
- *Definitions of terminology used in nuclear science and technology*
- *Facilities for handling radioactive isotopes, including the remote handling of radioactive materials*
- *Research reactors and critical facilities*
- *Reactor physics and radiation shielding*
- *Ensuring the integrity of computer programs in the nuclear field*
- *Siting requirements for nuclear facilities*
- *Nuclear facility design, including safety criteria for the facility*
- *Reactor operation, including operator training and selection*
- *Fuel design, handling, and storage*
- *Radioactive waste management*
- *Remediation and restoration of sites used for nuclear facilities*
- *Fission product behavior*
- *Probabilistic risk assessment, risk management, and risk criteria*

Structure & Process

ANS

Standards Committee

ANS Standards Committee



Standards Board Responsibilities

- Administers the Standards Committee Rules and Procedures, which have been accredited by ANSI
- Ensures that the rules of due process have been fulfilled and certifies the consensus process
- Establishes policies for standards development
- Coordinates the activities of the Standards Committee
- Recommends to the ANS Board of Directors on standards matters
- Solicits liaison members from other SDOs and ANS Professional Divisions

Consensus Committee Responsibilities

- Develops broad consensus on each of its standards and ensures due process
- Establishes and manages subcommittees
- Selects members based on recognized expertise but must represent a balance among materially affected interests
- Typically has 20 to 25 members

Nuclear Criticality Safety Committee

Scope:

To develop and maintain standards for determining the potential for nuclear criticality of fissile fissionable material outside reactors, for the prevention of accidental criticality, and for coping with accidents should they occur.

Research Reactors, Reactor Physics, Radiation Shielding and Computational Methods

Scope:

To develop and maintain standards for the location, design, construction, operation, and maintenance of all nuclear reactors for training and research, both as mechanisms for investigating reactors per se and as sources of radiation, and excluding reactors designed for the production of electrical energy; standards for the location, design, construction, operation, and maintenance of critical facilities; standards for calculational methods and computer codes for use in nuclear-reactor and reactor-physics calculations, including shielding. Inputs into calculations and codes, such as nuclear cross sections, are included in this scope.

Nuclear Facilities Standards Committee

Scope:

To develop and maintain standards for the preparation and maintenance associated with nuclear facilities. The Committee's standards address siting, design, operation, and waste management activities at these facilities, as well as remediation and restoration of formerly utilized sites.

Risk Informed Standards Committee

Scope:

To develop and maintain standards that establish safety and risk criteria and methods for probabilistic analysis, risk assessment, and risk management. These criteria and methods are applicable to design, development, construction, operation, decontamination and decommissioning, waste management, and environmental restoration for nuclear facilities.

List of Subcommittees

ANS-1: Conduct of Critical Experiments (N17)
ANS-6: Radiation Protection & Shielding (N17)
ANS-8: Fissionable Material Outside Reactors (N16)
ANS-10: Mathematics & Computation (N17)
ANS-14: Fast Pulse Reactors (N17)
ANS-15: Operation of Research Design (N17)
ANS-19: Physics of Reactor Design (N17)
ANS-21: Maintenance, Operations, Testing & Training (NFSC)
ANS-22: System Design Criteria (NFSC)
ANS-24: Modeling & Analysis (NFSC)
ANS-25: Site Characteristics (NFSC)
ANS-26: Emergency Planning (NFSC)
ANS-27: Fuel Cycle, Waste Management & Decommissioning (NFSC)
ANS-28: HTGR Design Criteria (NFSC)
ANS-29: Advanced Initiatives (NFSC)

Relationship between

ANS Standards Committee

And The US NRC

NRC's Participation and How it Offers Benefits

- NRC has a policy of participating in standards development to improve resource utilization
- Industry experts freely provide relevant technical knowledge and experience
- Regulatory requirements are developed in concert with requirements in standards
- Improves efficiency and effectiveness

ANS Interactions with the NRC

- NRC has appointed staff representatives to every ANS consensus body, and most subcommittees and working groups.
- Participating staff provide both their technical expertise and the NRC position on the technical and policy issues associated with the standard.
- The NRC endorsement of ANS standards can make it easier, or make it unnecessary, to issue new regulations.
- The development process of standards exerts a major influence on evolving regulatory guidance.

NRC Use of Standards

The National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104-113, Section 12(d), requires federal agencies to use voluntary consensus standards in lieu of government-unique standards, unless such use is impractical or inconsistent with law.

International Use of

ANS Standards

International Standards

- US involvement is coordinated through ANSI NTAG (Nuclear Technology Advisory Group)
- ANSI represents the US on international standards committees, including ISO and IEC
- ANS Standards Committee members participate in ISO TC-85, SC 5 (fuels) and SC 6 (nuclear technology)

In Summary

- The ANS has a history reaching back more than half a century of serving the nuclear technology community
- The ANS has always had a strong national and international presence in standards and information exchange
- The ANS Standards Committee is willing to work with all international institutions to exchange nuclear safety information through standards activities.

Attachment B

ANS Standards Committee Activity Update

Donald J. Spellman, Chair
ANS Standards Board

Nov 3, 2011

ANS Standards Committee
Outlook

- The challenges and opportunities facing the Standards Committee substantially increased recently with
  - the Fukushima earthquake and its nuclear consequences
  - The recent earthquake in middle Virginia
- The Standards Board understands that the standards activity needs to do its share to enhance ANS's value proposition consistent with a vision of co-operation now emerging.
- The relevance of ANS's technical capabilities has increased on several fronts, including the planned merger of ANS and ASME PRA related bodies and a joint SDO/NEI task force.
- With the ANS BOD pointing the way, the Standards Committee can and should be a leader in the worldwide efforts to make nuclear technology safer and more economic.

ANS- SDO Activities

- The BOD can expect to see much activity in the level of clarity regarding each society's roles and responsibilities, as well as resource needs implications of collaborative activities.
- We have moved forward on the ANS BOD's conditional approval of the merger of ANS and ASME PRA bodies subject to resolution of certain equity, scope, and procedural issues.
- A new ANS, ASME, ASTM, IEEE, JSME, NRC, NEI Cooperative group led by ASME BNCS has been formed to specifically answer standards responses to certain focus areas of the Fukushima incident.
- The NESCC has formed a Task Group led by ANS to establish national standards priorities for responding to recent events.
- We request the BOD to ensure that the needs of the ANS Standards Committee are fully considered as ANS restructuring plans are implemented and the Standards Committee requires more support.

Standards Board Initiatives

- The ANS continues to be an active participant of the Nuclear Energy Standards Coordination Collaborative (NESCC) and participates on several task groups.
- The Fukushima Response Team has had initial meetings at NEI and Japan JSME HQ to set up Task Groups to respond to 5 focus areas:
  - Treatment of Beyond Design Basis External Event Consequences
  - Extended Station Blackout
  - Hydrogen Control
  - Pressure Boundary Integrity
  - Containment Integrity
  - Fuel Pool Integrity
  - Severe Accident Management Guidance for Response and Recovery

Standards Board Initiatives (Continued)

- Reorganized the SB agenda to focus more on:
  - Future user needs,
  - Board member activity,
  - Guidance to Consensus Committees,
  - External and internal interactions,
  - Vision of the Standards Committee path forward.
- Formed 5 SB Task Groups and assigned members by preference.

Standards Board Initiatives (Continued)

- Communications – Improve the links between ANS and other SDOs, users, and international organizations
- Policy – Improve the link between the SB and the rest of the management structure of ANS
- Priority – Improve the consensus committee method and reporting system for the priority of standards development/maintenance
- Information Technology – Do whatever it takes to get ANS to complete our membership database and provide on-line group meetings/comment resolution
- Sales – double or triple standards sales in the next 3 years

Standards Board Initiatives (Continued)

- A technical session was held yesterday, November 2, on standards issues related to Small Modular Reactors.
- ANS leads the standards development issues for new reactors – MGCR, LMR, SMR.
- ANS working groups for environmental issues are ahead of the curve in responding to updated standards.
- We continue outreach with industry to increase awareness of public review opportunities and notification of new standards through NEI's liaison to Senior Nuclear Officers.

ANS Standards Committee

Activities and Highlights

- Year-to-date, we have received ANSI approval of 3 (3)* new standards, 2 (1) revised standard, and 6 (2) reaffirmations of current standards.
- Four (2) standards have been published this year; 2 (1) new standards are in production; 12 (6) standards were issued for public review; 4 (2) responses to inquiries on standards were released.
- The Standards Committee approved the initiation of 15 (7) standards projects.

* Numbers in parentheses reported on June 2011 report.

Attachment C

American Nuclear Society

Report to the Board of Directors

by

American Nuclear Society Standards Board

(Name of Committee or Division)

181st Meeting of the Board of Directors

Submitted by:	Donald J. Spellman, Chair		Concurrence:	

Date Submitted:	October 11, 2011

Recommended Actions (Motions)

PETITION TO THE ANS BOARD OF DIRECTORS

ANS STANDARDS COMMITTEE

Introduction: The ANS Standards Committee is petitioning the ANS Board of Directors to make adequate meeting space available for its committees who find it necessary to meet during the national meetings. This petition quantifies the reasons why the Society is obligated to provide this support. The Standards Committee recognizes that this policy, when approved, could open up the possibility for other organizations to make the same arguments. However, no other ANS organization can justifiably subscribe to any one or more of these positions.

This petition was developed in recognition that many chairs of the ANS Standards Committee have expressed considerable disbelief, dismay, and anger at the ANS policy that prohibits standards meetings in parallel with technical sessions at the national meetings. The positions set forth by these chairs are:

- Whereas, the Standards committee, which one of the largest of any active ANS organization, contributes significantly to Society revenue, reputation, and professional standing.

- Whereas, most standards meetings require the dedication of a full day, and often more, and therefore must be conducted in parallel with technical sessions when held in conjunction with a national meeting. A limited number of subcommittee and working group meetings are conducted before or after the regular technical sessions, and this practice will be continued.

- Whereas, members of the Standards Committee fully recognize that one of the reasons for not making more meeting rooms available is the reluctance by some hotels to provide so many meeting rooms in relation to the guaranteed room count. In those cases the Society should pay for the needed rooms and make the appropriate adjustment to the meeting registration fee. Based on many years of experience in holding individual standards meetings at hotels across the country, the standards attendance is usually sufficient to secure a free meeting room.

- Whereas, attendance at the national meeting by approximately 50 standards participants contributes a significant fraction of the hotel room count.

- Whereas, formal recognition by the ANS Board of Directors of the right for standards committees to meet during the national meetings will increase the number of meeting registrations and the hotel room count. (This fact is demonstrated by the larger number of committee meetings previously experienced.)

- Whereas, many of our volunteers are retired which means they must pay all their expenses from personal funds. The rental of separate meeting space by several of the volunteers who must also pay their own travel expenses presents a personal financial penalty for providing a valuable service to the Society;

- Whereas, members of the ANS Standards Committee who attend national meetings of other societies point out that the registration fee is waived or is reduced to a token amount for standards committee members because of the value they provide to those other societies This example is cited to point out the perceived value standards has in other societies relative to ANS.

- Whereas, members of the committees who normally attend use the complementary reason of attendance at the ANS national meeting as part of their justification to their company management for approval of travel expenses.

- Therefore, there is a preference to hold standards committee meetings in conjunction with the national meeting.

- Therefore, if ANS continues to not provide meeting space, standards committees are likely to meet anyway, using a separate location. Either way, attendance at the technical sessions is not affected. However, if these committees choose to meet at a different time and location, ANS loses these registration fees and the credit toward the hotel room count.

- Therefore, if the current restrictive practice is continued, it is very likely that insufficient numbers of volunteers will continue to actively support ANS standards development and maintenance. Other societies that do support their volunteers are also struggling with this issue. Volunteers must be recognized by the society they serve or they will no longer be able to enlist company backing for travel expenses.

Therefore, the ANS Standards Committee petitions the ANS Board of Directors;

1. 1. To establish a policy that ANS will provide adequate meeting space at each national meeting for those standards committees (Boards, Subcommittees, Working Groups) that choose to meet. These committees will be required to provide adequate advance notice to ANS, and have a record of attendance supporting this provision.

1. 2. To Recognize committee members for their contribution to the Society by reduction in registration fees to $50 for one-day attendance or $100 for multi-day attendance.

Attachment D

SB Task Group Members

Communications – improve the links between ANS and other SDOs, users (utilities, designers, architect engineers, and fuel fabricators) and international SDOs (Note 1)

Herb Massie
Caroline McAndrews
Stanley Levinson
Bob Budnitz
Peter Hastings

Policy – improve the link between the SB and the management structure of ANS (Note 2)

Don Spellman
Prasad Kadambi
Jim Mallay
Chuck Moseley

Priority – improve the consensus committee method and reporting system for the priority of standards development/maintenance (Note 3)

Carl Mazzola
Jim August
Mathew Panicker
Tawfik Raby

Information Technology – do whatever it takes to get ANS to complete our membership database and provide on-line group meetings/comment resolution

Bob Busch
Walter Justice
Mike Ruby
Bill Turkowski

Sales – double or triple our standards sales in the next 2 years (Note 4)
Steve Stamm
Bill Gattoni
Andy Cook
Robert Sachs

Note 1 - The impacts of the U.S. and International reactions to the Fukushima event is getting a lot of attention among the US standards development organizations. The ANS standards board will have to decide the path for ANS. This will be the responsibility of the Communications Task Group

Note 2 - the policy group will look within ANS management to enhance the position of the ANS Standards Committee within the ANS corporate structure. In the future the SB is going to need a lot more support from ANS than we have received in the past.

Note 3 – Jim August is also the Chair of a task group with NESCC on this same subject. Jim will coordinate the ANS efforts with the other nuclear SDOs.

Note 4 – Sales = Revenue = ANS budget support for staff and infrastructure

Attachment E

Memorandum of Understanding between the American Nuclear Society (ANS) and the American Society of Mechanical Engineers (ASME)

The American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS) wish to strengthen their cooperative efforts in order to enhance the ability of both organizations to respond to the needs of their stakeholders in support of the commercial nuclear power industry on a global basis.

The purpose of this memorandum of understanding (MOU) is to promote greater cooperation and collaboration between ANS and ASME within the field of risk technology.

Currently, ASME and ANS are operating under an agreement for the combined probabilistic risk assessment (PRA) standard. The PRA standard's scope includes Level 1 (including LERF), Level 2, and Level 3. ASME has published and maintains the combined PRA standard for Level 1 (including LERF), and ANS is developing and will publish and maintain the combined PRA standard for Level 2 and Level 3.

ANS and ASME agree to form a new Joint Committee on Nuclear Risk Management (JCNRM).

JCNRM is responsible for Standards Development / Maintenance in the subject areas shown in Table 1. The JCNRMmay also address emerging risk management standards development areas such as those shown in Table 2... Inclusion of these additional development areas and interfaces are subject to review by the governing boards, i.e., the ASME Board on Nuclear Codes and Standards (BNCS) and the ANS Standards Board (SB), as these needs arise. The cognizant staff members of ASME and ANS will address publication and maintenance of additional standards related to these development areas. Further, JCNRM may be tasked with reviewing / commenting on risk technology related proposed provisions of standards developed by other ASME / ANS Standards Committees at the request of those Standards Committees (see Table 3 for examples).

JCNRM will operate under procedures approved by ASME and ANS. ASME will provide the Secretary for JCNRM.

Other more specific proposals and agreements on matters related to the above may be entered into as the need arises and by mutual agreement.

The terms of this MOU apply only to the extent of available funding by both parties.

Both parties will make every effort to comply with this MOU unless such compliance is in direct conflict with the laws, regulations, or stated government policy. Both parties will make every effort to accept and follow in practice Section IX, Decision of the Committee on Principles for the Development of International Standards of Revision 8 (G/TBT/1/Rev.8) announced by the World Trade Organization, Committee on Technical Barriers to Trade May 23, 2002.

Neither party shall use the logos and trademarks of the other party without prior written consent and compliance with the owner's policies on the use of such marks. Further, each organization will respect the copyright policy of the other organization and agrees that intellectual property will not be republished without prior written permission from the originating organization.

ASME and ANS agree to regularly review this MOU to ensure it meets its stated purpose.

This MOU shall remain in effect unless terminated by either party upon giving 90 days written notice of intention to terminate.

_____ _____

Date

American Nuclear Society

_____ _____

Date

The American Society of Mechanical Engineers

Table 1. Current Standards Development / Maintenance Undertaken by JCNRM:

1. At-Power Internal Hazards Levels 1, 2 and 3
2. Low Power/Shutdown Internal Hazards Levels 1, 2 and 3
3. External Hazards At-Power and Low Power/Shutdown (including Seismic)
4. Fire PRA At-Power and Low Power/Shutdown
5. Spent Fuel Pool PRA
6. Risk Management Independent Decision Making
7. Assessment of Aggregate Effects

Table 2. Potential Future Standards Development:

1. Uncertainty Analysis
2. Data Analysis
3. Dry Cask Storage PRA
4. Spent Fuel Shipping & Handling PRA
5. PRA for Instrumentation
6. Probabilistic Threat Assessment (Security)
7. Qualification of PRA Personnel
8. General PRA Update Process
9. Specific PRA Update Process

Table 3. Resource for Other Standards Committees' Activities:

1. Severe Wind PRA (ANS-58.21),
2. PRA Software Quality Assurance (NQA-1),
3. Risk Significance Categorization (ANS),
4. RI-IST (ASME OM),
5. RI-ISI (ASME SCXI),
6. RI Emergency Planning (ANS),
7. Work Activity Risk Assessment (ASME OM),
8. RI-MOV Program (ASME OM),
9. RI-Procurement Program (ASME NQA-1),
10. RI Equipment Qualification Program (QME-1),
11. RI Categorization Process for Passive, Inherently Reliable Structures, Systems, and Components (SC XI),
12. Risk-Informed Safety Classification (ANS),
13. RI Design Engineering Program (SC III)

Attachment F

BYLAWS AND RULES

American Nuclear Society

Risk Application Standards Consensus Committee

(RASC)

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Revised: November 15, 2011 (Pending)

Written: October 13, 1999
Approved: October 26, 1999
Revised: April 17, 2000
Revision Approved: July 6, 2000

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TABLE OFCONTENTS

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1. Scope

The American Nuclear Society Risk Applications Standards Committee in a consensus committee that operates in accordance with the Rules and Procedures of the American Nuclear Society Standards Committee. The committee is responsible for the development and maintenance of standards that establish criteria for the application of nuclear risk management. These criteria are applicable to design, development, construction, operation, decontamination and decommissioning, waste management, and environmental restoration for nuclear facilities.

The Committee is also responsible for reviewing standards being developed by other standards developing organizations as assigned by the ANS Standards Board (SB) on related topics to ensure consistency and lack of duplication.

2. Organization

2.1 *RASC*

The RASC shall establish subcommittees, working groups and ad hoc groups or special committees as necessary to fulfill its responsibilities.

2.2 *AmericanNuclear Society (ANS)*

ANS sponsors the RASC and provides (1) staff assistance to help fulfill consensus balloting procedures, to maintain the official records of the RASC, to provide administrative support, to assist in the distribution of draft standards, to publish approved standards, and to publicize Committee meetings, and (2) contractual services whenever a contract organization is provided by an external source.

2.3 *CommitteeResponsibilities*

2.3.1 *Consensus Committee*

The consensus committee shall be responsible for establishing and managing the activities of subcommittees, working groups, and ad hoc groups needed to develop and maintain standards within its scope of responsibility.

2.3.2 *Subcommittees*

Subcommittees maybe established by the Committee to manage the activities of working groups and to perform detailed technical reviews of all proposed standards within their assigned scopes of responsibility. Each subcommittee shall be assigned a name and specific area of technical responsibility and shall review proposed standards for technical need, clarity, and completeness. Subcommittees shall ensure that its standards are consistent with other related American National Standards.

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Deleted: The RiskInformed Standards Committee (RISC or the"Committee") is responsible for the development of standards that establish risk criteria and methods for probabilistic risk analysis, risk assessment, and risk management for nuclear facilities. These criteria and methodsare applicable to design, construction, and operational activities as well as decontamination, decommissioning, waste management,and environmentalrestoration.

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2.3.3 *Working Groups*

The Committee and its subcommittees shall establish working groups to develop and maintain standards within their assigned scopes of responsibility.

2.3.4 *Ad Hoc Groups and Special Committees*

The Committee and its subcommittees may establish ad hoc, temporary groups to conduct technical analysis, evaluations, or studies. The Committee may establish special committees to perform specific technical or administrative tasks in support of other Committee activities.

3. Membership

3.1 ***RASC***

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3.1.1 *Selection of Members and Officers*

The initial membership of the RASC shall beapproved by the ANS Standards Board(SB). Additions or reduction in members shall be determined by the Committee and shall be approved by majority vote at a meeting, by letter, or by electronic means. The Chair and Vice Chair shall be elected by the Committee (see Section 4.1). ANS shall provide a staff member to the Committee to assist in administrative matters, and this member shall be designated as the Secretary. The Secretary may have voting privileges in procedural and policy matters but shall not have balloting privileges.

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3.1.2 *Balance of Membership*

All directly and materially affected interests shall have an opportunity for fair and equitable participation on the Committee without dominance by any single interest group. Opportunity for membership on the Committee shall be provided to individuals and organizational representatives willing to participate. Each member should have a background in the scope of the Committee. To ensure proper balance, not more than one-third of the membership shall be from any particular interest group, such as manufacturers and suppliers, owners and operators, designers and constructors, government agencies, insurance interests, academia and laboratories, and consultants. Representatives from other standards developing organizations having scopes closely related to that of the Committee shall be sought for liaison membership.

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3.1.3 *Responsibilities of Membership*

Each Committee member shall be expected to give thorough consideration to each subject brought before the Committee for action, to vote on the approval of each proposal, to advise on the development of standards and their maintenance, to assist in establishing the membership of subcommittees, and to assist generally in carrying out the functions of the Committee. The Chair shall take appropriate action to ensure that all members actively participate in the work of the Committee. The Chair shall annually review the record of activity of each member with regard to his or her contribution, balloting record, response to ballot comments, attention to correspondence, and meeting attendance. If the Chair finds, after a review of a member's record, that the member should be removed, then the Chair shall

inform the member and the Secretary in writing stating the reasons for the removal. Any member removed from the Committee may appeal that decision to the SB.

3.1.4 *Alternates*

Any member of the Committee who cannot attend a Committee meeting should be represented By an alternate who shall have all the privileges and obligations of a member during the period of his or her service in this capacity. The selection of an alternate for two or more consecutive meetings shall be subject to acceptance by the Chair.

3.1.5 *Observers and Experts*

Any individual and organization having an interest in the work of the RASC may request being designated as an observer. The RASC may also select individual experts to provide technical assistance to the Committee. Individual experts shall serve for a specified period and shall be accepted by majority vote at a meeting, by letter, or by electronic means. Observers and individual experts shall be advised of RASC activities, may attend meetings, and may submit comments for consideration, but shall not vote, ballot, or hold office.

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3.2 ***Subcommittees***

Each member of a subcommittee shall have competence in and concern with the scope of the subcommittee. To ensure balance of interests, no more than 40 percent of the membership shall be from anyone interest group as defined in Section 3.1.2, except with the approval of the Chair. Approval to exceed 40 percent shall be given in cases where the required expertise resides within a few categories of interest only.

3.3 ***Working Groups***

Each member of a working group shall have demonstrated expertise in the technical field of the proposed standard. The size and diversity of the working group shall be consistent with the goals of developmental efficiency, user interest, and the breadth of scope of the proposed standard.

4. Officers

4.1 ***Chair and Vice Chair***

The Chair and Vice Chair of the consensus committee shall be elected by the Committee for a specified, renewable term as determined by majority vote by the Committee. Elections shall be approved by majority vote at a meeting, by letter, or by electronic means. The election of the Chair or Vice Chair shall be valid only if at least two-thirds of the eligible membership votes.

The Chair shall preside at all meetings of the Committee and shall perform such duties as are customarily required by this office. The Vice Chair shall act for the Chair in his or her absence, or as requested.

The Chair shall maintain technical liaison with other related standards developing organizations and appropriate regulatory agencies to coordinate activities and to attempt to avoid conflicts, deficiencies, or overlaps.

4.2 *Secretary*

The Secretary shall bean ANS staff member and shall be responsible for the administration of the consensus balloting process, including the distribution of draft standards and ballot forms, and collection and documentation of ballot results. The Secretary shall be responsible for recording and distributing minutes of all Committee meetings to the membership and shall maintain the records of the Committee.

5. Conduct of Business

5.1 *Policies and Procedures*

Policies and procedures shall be established to carry out the management responsibilities of the Committee and to ensure that the principles of due process and consensus are properly executed.

5.2 *Meetings*

Meetings of the Committee shall be held at least twice in each calendar year. The time and location of each meeting shall be announced as early as possible but no later than 60 days prior to the meeting. To facilitate the conduct of business and to provide timely communication to Committee members, the Chair shall convene teleconferences and shall direct the Secretary to distribute pertinent information to the Committee by electronic means.

Meetings of subcommittees and working groups shall be held as judged necessary by the respective chairs to fulfill their assigned responsibilities on schedule. Conference calls and electronic communication shall be used to expedite the conduct of business and to rapidly disseminate needed information.

5.3 *Conduct of Meetings*

Committee meetings shall be conducted in accordance with Roberts Rules of Order Newly Revised, except where specifically superseded by these Procedures.

5.4 *Quorum*

Except for the purpose of balloting, election of officers, or revising these Procedures, a quorum shall consist of more than 50 percent of the voting membership, including designated alternates. When a quorum exists, a simple majority of those present shall determine actions and decisions of the Committee.

5.5 *Consensus*

Consensus is the state of having reached substantial agreement on an issue by employing a process wherein portions from various proposals are incorporated after open consideration and development of positive alternatives. Actions taken by the Committee on proposed standards shall adhere to the spirit of gaining consensus.

Consensus for approval of a draft standard shall be declared if, in the final ballot tally, at least two-thirds of the ballots cast are affirmative. A determination of consensus shall be made only if at least two-thirds of the membership that is eligible to ballot has submitted valid ballots.

A valid ballot is a ballot submitted by the due date by a Committee member and, in the case of a negative ballot, is accompanied by substantive technical comments explaining the negative position.

Once the Chair has declared that consensus for approval has been achieved and agreed-upon comments have been addressed, the standard shall be submitted to the SB for certification.

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5.6 *Review of Draft Standards*

Draft standards developed by a working group shall be subjected to a technical review prior to being balloted. This technical review shall be conducted by the responsible subcommittee, where one has been established, or by a special review committee selected for that purpose by the Committee. In addition, the Committee may conduct a pre-ballot review of the draft standard.

The working group shall address all comments received.

5.7 *Balloting Process*

The Committee shall ballot each draft standard at such time that the working group Chair and responsible subcommittee Chair determine that the standard is sufficiently complete. The consensus ballot shall be conducted by the Secretary of the Committee.

Ballots submitted as "approved with comments" or "not approved" shall be accompanied by comments in support of the ballot. The working group shall address all comments received and shall respond to all members who submitted comments. The working group shall make a concerted effort to resolve all negative ballots by working directly with the balloters and shall provide individual responses to all "not approved" ballots. The working group shall request a Response from each negative balloter within 60 calendar days. Negative balloters shall be requested to upgrade their ballots to "approve" or "approve with comments."

If one or more negative ballots remain unresolved, all Committee members shall be advised and shall be provided an opportunity to reconsider their ballots based on an examination of the open issues.

If substantive changes are made to the standard, the standard shall be balloted again, unless the substantive changes have been agreed to by a vote of the Committee during a meeting. The Chair of the Committee, in consultation with the responsible subcommittee Chair, shall determine whether the changes are substantive.

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5.8 *Public Review*

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Proposed standards shall be sent to ANSI to be noticed for public review simultaneous with or following the consensus ballot. An announcement that the standard is available for public review shall be published in Nuclear News and shall be distributed by appropriate electronic means.

Ifa standard is re-balloted, as set forth in Section 5.7, a second public review shall be conducted.

5.9 ***Maintenance of Standards***

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American National Standards developed by the Committee shall be considered for maintenance within four years after the year of ANSI approval. The Committee shall direct that formal action be initiated to revise, reaffirm, or withdraw each standard within five years after approval.

5.10 ***Interpretations***

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Interpretations and clarifications shall be handled as set forth in the Accredited Rules and Procedures of the ANS Standards Committee and in the policies of the SC. Interpretations shall be subjected to the complete consensus process, including Committee ballot. Clarifications shall be developed in the spirit of the consensus but do not require Committee ballot.

6. Appeals

An appeal regarding the conduct of any procedure called for under Section 5 maybe made at any time. Appeals shall be submitted in writing to the Secretary of the SC stating the explicit reason for the appeal and specifying what part of the process was not adequately implemented. The appeal shall be addressed as set forth in the Standards Committee Accredited Rules and Procedures and implementing policies established by the SC.

7. Revisions to These Bylaws and Rules

Proposed revisions shall be approved by two-thirds majority vote by the Committee at a meeting, by letter, or by electronic means.

Attachment G

RISC Chairman's Report to the Standards Board

November 1, 2011, Meeting ● Washington, D.C.

Standards in Development

ANS-58.22-201x, "Low Power Shutdown PRA Methodology"

- Working group is led by Don Wakefield, underway since 1999.
- An earlier ballot resulted in substantive changes.
- A reballot closed in October 2008, and resulted in 674 committee comments and 116 public comments.
- Comment responses and a revised draft were issued to RISC in November 2009. Since then, considerable additional work has been done to improve the draft.
- The working group met the week of September 19, 2011, in conjunction with the JCNRM meeting in Chicago, in a continued effort to resolve remaining issues.
- It is expected that this standards will be ready for a final ballot toward the end of calendar 2011 or perhaps in early 2012.
- Whether this standard will be balloted for release under the TUPA policy ("Trial Use and Pilot Applications") remains uncertain at this time, but this is the likely approach.

ANS/ASME-58.24-201x, "Severe Accident Progression and Radiological Release (Level 2) PRA Methodology to Support Nuclear Installation Applications"

- Writing group is led by Mark Leonard, underway since 2005.
- A draft was issued to RISC & ASME CNRM for preliminary review in January 2010.
- Comments were provided to the working group for consideration in May 2010.
- The working group held a two-day meeting at ANS on August 23 & 24, 2010 and has been working since that time to produce a final version.
- The final version was completed in September 2011 and is being reviewed for appropriate use of action verbs/requirements/format before issuing with a request that JCNRM ballot this standard in final form. The release for JCNRM ballot should occur in November 2011.
- This standard will almost certainly be released for ballot under the TUPA policy.

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

- Working group is led by Keith Woodard, underway since 2005.
- Draft issued to RISC & ASME CNRM for preliminary review in October 2009.
- Comments were provided to the working group for consideration in February 2010, and the NRC comments were made available in April 2010.
- Draft issued for TUPA ballot to RISC & CNRM; ballot closed March 2011.
- Ballot comments are being resolved, to be followed by another ballot.
- The working group held a three-day meeting at ANS on October 25 - 27, 2011.
- The working group will be holding an additional meeting November 2, 2011, at the ANS meeting.
- Unsure whether this standard will be issued under the TUPA Policy. Will be resolved when the next ballot occurs.

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

The RISC met on September 20 & 23, 2010, in a joint meeting with the ASME CNRM in Boston. Another joint meeting was held in Seattle on January 31 to February 3, 2011, and another one was held in Chicago on September 19-22, 2011. The two committees are now functioning operationally "as one," namely as the Joint Committee on Nuclear Risk Management ("JCNRM"), even though the formal JCNRM approvals are not yet in place. The only activities that are still taking place separately are actual ballots, of which there are two actively underway now: ANS RISC is actively balloting ANS 58.25 (see above), and ASME CNRM is actively balloting a new Addendum (Addendum B) to the ANS-ASME Combined PRA Standard. It has been agreed that all future ballots will be done under the joint JCNRM. The organizational structure and member assignments for the JCNRM are now in place and functioning well, including three JCNRM subcommittees and several writing groups (writing new PRA standards) and working groups (developing new PRA standards.) .Earlier, the ANS Standards Board had approved the establishment of the merged joint committee at its meeting in June 2010, and the SB also approved the proposed "JCNRM Rules and Operating Procedure", but with the condition that certain administrative and financial-business issues be resolved - although as of now, a year later, they have not yet been resolved. For about a year, the ASME side has been going through their ballot and approval process. This ASME process has now reached almost the final stage. The ANS Standards Board will be notified of any proposed changes to the JCNRM procedures that emerge from the ASME process. It is anticipated that the result of the ASME-BNCS process will be approval by ASME of the JCNRM, but with some proposed changes to the draft "JCNRM Rules and Operating Procedure." The proposed changes, which are being followed closely by the RISC Chairman, are not considered to be substantive—"a lot of little noodling and some modest improvements that are not controversial." There has been active involvement recently by the ANS Standards staff (M.B. Gardner and P. Schroeder). Of course, the proposed final version must be forwarded to the ANS Standards Board for its review and approval. This SB approval, if it occurs, should be essentially the final step before the JCNRM can come into existence.

In the meantime, as mentioned above, the ANS RISC Committee's activities have mostly been informally folded into those of the proposed new JCNRM, as have the activities of the ASME CNRM.

RISC Meetings

No further RISC meetings are planned. All future meetings will be held as the JCNRM. The next joint ANS-ASME meeting will be held in St. Petersburg, Florida, in February 2012.

Standards Inquiries and Delinquent Standards

The RISC has not received any standards inquiries and does not have any delinquent standards in need of maintenance.

Attachment H

N16 Chairman's Report to the Standards Board
November 1, 2011, Meeting ● Washington D.C.

PINS in Development (1)

- ANS-8.22, "Nuclear Criticality Safety Based on Limiting and Controlling Moderators" (revision of ANSI/ANS-8.22-1997 (R2006))

PINS in Approval Process/Resolving Comments (1)

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

PINS Withdrawn (1)

- ANS-8.25, "Development of Nuclear Criticality Safety Related Postings" (new standard)

Standards in Development – Approved PINS (9)

- ANS-8.1, "Nuclear Criticality Safety in Operations With Fissionable Materials Outside Reactors" (revision of ANSI/ANS-8.1-1998 (R2007))
- ANS-8.3, "Criticality Accident Alarm System" (revision of ANSI/ANS-8.3-1997 (R2003))
- ANS-8.10, "Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement" (revision of ANSI/ANS-8.10-1983 (R2005))
- ANS-8.12, "Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors" (revision of ANSI/ANS-8.12-1987 (R2011))
- ANS-8.15, "Nuclear Criticality Control of Selected Actinide Nuclides" (revision of ANSI/ANS-8.15-1981 (R2005))
- ANS-8.19, "Administrative Practices for Nuclear Criticality Safety" (revision of ANSI/ANS-8.19-2005)
- ANS-8.20, "Nuclear Criticality Safety Training" (revision of ANSI/ANS-8.20-1991 (R2005))
- ANS-8.21, "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors" (revision of ANSI/ANS-8.21-1995 (R2011))
- ANS-8.28, "Administrative Practices for the Use of Non-Destructive Assay Measurements for Nuclear Criticality Safety" (new standard)

Standards Approved by N16 (2)

- ANSI/ANS-8.14-2004 (R201x), "Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors" (with Standards Board for certification)
- ANSI/ANS-8.22-1997 (R201x), "Nuclear Criticality Safety Based on L imiting and Controlling Moderators" (BSR-9 submitted to ANSI for approval)

Responses to Inquiries (1)

An inquiry was received 5/9/11 on ANSI/ANS-8.3-1997 (R2003), "Criticality Accident Alarm System Inquiry." A response was drafted and sent to the ANS-8 Subcommittee for approval with 10/14/11 due date.

Delinquent Standards – 5+ Years Since ANSI Approval (6)

- ANSI/ANS-8.3-1997 (R2003), "Criticality Accident Alarm System" (reaffirmation to be processed to allow sufficient time for completion of revision)

- ANSI/ANS-8.10-1983 (R2005), “Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement” (revision initiated)
- ANSI/ANS-8.15-1981 (R2005), “Nuclear Criticality Control of Special Actinide Elements” (revision initiated)
- ANSI/ANS-8.19-2005, “Administrative Practices for Nuclear Criticality Safety” (revision initiated)
- ANSI/ANS-8.20-1991 (R2005), “Nuclear Criticality Safety Training” (revision initiated)
- ANSI/ANS-8.22-1997 (R2006), “Nuclear Criticality Safety Based on Limiting and Controlling Moderators” (reaffirmation to be processed to allow sufficient time for completion of revision)

Attachment I

N17 Chairman's Report to the Standards Board
November 1, 2011, Meeting ● Washington D.C.

PINS in Development (2)

- ANS-6.1.1, "Neutron and Gamma-Ray Fluence-To-Dose Factors" (reinvigoration of historical standard)
- ANS-15.20, "Criteria for the Reactor Control and Safety Systems of Research Reactors" (new standard)

PINS in Approval (1)

- ANS-6.4.3, "Gamma-Ray Attenuation Coefficients & Buildup Factors for Engineering Materials" (reinvigoration of historical standard – resolving ANS-6 comments)

Standards in Development – Approved PINS (13)

- ANS-5.1, "Decay Heat Power in Light Water Reactors" (revision of ANSI/ANS-5.1-2005)
- ANS-6.1.2, "Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection Calculations for Nuclear Power Plants" (revision of ANSI/ANS-6.1.2-1999 (R2009))
- ANS-10.7, "Non-Real Time, High Integrity Software for the Nuclear Industry" (new standard)
- ANS-15.2, "Quality Control for Plate-Type Uranium-Aluminum Fuel Elements" (revision of ANSI/ANS-15.2-1999 (R2009))
- ANS-15.8, "Quality Assurance Program Requirements for Research Reactors" (revision of ANSI/ANS-15.8-1995 (R2005))
- ANS-15.17, "Fire Protection Program Criteria for Research Reactors" (reinvigoration of historical standard ANSI/ANS-15.17-1981 (R2000))
- ANS-15.19, "Shipment and Receipt of Special Nuclear Material (SNM) by Research Reactor" (reinvigoration of historical standard ANSI/ANS-15.19-1991)
- ANS-15.21, "Format and Content for Safety Analysis Reports for Research Reactors" (revision of ANSI/ANS-15.21-1996 (R2006))
- ANS-19.1, "Nuclear Data Sets for Reactor Design Calculations" (revision of ANSI/ANS-19.1-2002 (R2011))
- ANS-19.9, "Delayed Neutron Parameters for Light Water Reactors" (new standard)
- ANS-19.11, "Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors" (revision of ANSI/ANS-19.11-1997 (R2011))
- ANS-19.12, "Nuclear Data for the Production of Radioisotope" (new standard)

Standards Approved by N17 (2)

- ANSI/ANS-10.5-2006 (R201x) "Accommodating User Needs in Scientific and Engineering Computer Software Development" (with Standards Board for certification of reaffirmation)
- ANSI/ANS-19.3-2011, "Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors" (revision of ANSI/ANS-19.3-2005 approved by ANSI 8/26/11)

Standards Published (1)

- ANSI/ANS-19.6.1-2011, "Reload Startup Physics Tests for Pressurized Water Reactors," (revision to ANSI/ANS-19.6.1-2005)

Responses to Inquiries (2)

- An inquiry was received 4/25/11 on ANSI/ANS-5.1 (Versions 1979, 1994, 2005), "Decay Heat Power in Light Water Reactors." Response issued October 2011.
- An inquiry was received 9/5/11 on ANSI/ANS-6.4.3-1991 (W2001), "Gamma-Ray Attenuation Coefficients & Buildup Factors for Engineering Materials." Calculations being run to confirm potential error.

Delinquent Standards — 5+ Years Since ANSI Approval (5)

- ANSI/ANS-5.1-2005, "Decay Heat Power in Light Water Reactors" (revision initiated)
- ANSI/ANS-6.4-2006, "Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants"

- ANSI/ANS-6.4.2-2006, “Specification for Radiation Shielding Materials”
- ANSI/ANS-15.8-1995 (R2005), “Quality Assurance Program Requirements for Research Reactors” (revision initiated)
- ANSI/ANS-15.21- 1996 (R2006), “Format and Content for Safety Analysis Reports for Research Reactors”

Attachment J

NFSC Chairman's Report to the Standards Board

November 1, 2011, Meeting ● Washington, D.C.

Overview

The NFSC and its eight subcommittees were very active and successful since the 2011 Annual Meeting with positive progress on 44 different ANS standards. Listed below are the specific activities by standard.

I. PINS Activities (7)

A. PINS in Preparation (3)	Status	SC
(1) ANS-5.10, Airborne Release Fractions at Non-Reactor Nuclear Facilities	in development by WG	ANS-24
(2) ANS-40.21, Siting, Construction, and Operation of Commercial Low Level Radioactive Waste Burial Grounds (new standard)	in development by WG	ANS-25
(3) ANS-40.35, Volume Reduction of Low-Level Radioactive Waste or Mixed Waste (reinvigoration of historic standard ANSI/ANS-40.35-1991)	in development by WG	ANS-27

B. PINS in NFSC Approval Process (2)	Status	SC
(1) ANS-2.32, Guidance on the Selection and Evaluation of Remediation Methods for Subsurface Contamination (new standard)	resolving comments/under revision	ANS-27
(2) ANS-50.1, Nuclear Safety Criteria for the Design of Light Water Reactor Plants (new standard)	in development by WG	ANS-29

C. PINS Approved by NFSC (2)	Status	SC
(1) ANS-2.8, Guidelines for Design Basis and Beyond Design Basis External Flood Evaluation at Nuclear Facilities (reinvigoration of historic standard ANSI/ANS-2.8-1992)	PINS approved by NFSC issued to SB for review	ANS-25
(2) ANS-2.31, Standard for Estimating Extreme Precipitation at Nuclear Facility Sites (new standard)	resolving comments @ SB level	ANS-25

II. Standards Activities (29)

A. Standards and Draft Standards in Development with Approved PINS (21)	Status	SC
(1) ANS-2.2, Earthquake Instrumentation Criteria for Nuclear Power Plants (revision of ANSI/ANS-2.2-2002)	in development by WG	ANS-25
(2) ANS-2.9, Evaluation of Ground Water Supply for Nuclear Facilities (reinvigoration of historical standard ANSI/ANS-2.9-1980 (R1989))	in development by WG	ANS-25
(3) ANS-2.15, Criteria for Modeling and Calculating Atmospheric Dispersion of Routine Radiological Releases from Nuclear Facilities (new standard)	in development by WG	ANS-24
(4) ANS-2.16, Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities (new standard)	in development by WG	ANS-24
(5) ANS-2.25, Surveys of Terrestrial Ecology Needed to License Thermal Power Plants (reinvigoration of historical standard ANSI/ANS-2.25-1982 (R1989))	in development by WG	ANS-25
(6) ANS-2.30, Assessing Capability for Surface Faulting at Nuclear Facilities (new standard)	in development by WG	ANS-25
(7) ANS-3.1, Selection, Qualification, and Training of Personnel for Nuclear Power Plants (reinvigoration of historical standard ANSI/ANS-3.1-1993 (R1999))	in development by WG	ANS-21
(8) ANS-3.4, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants (revision of ANSI/ANS-3.4-1996 (R2002))	in development by WG	ANS-21
(9) ANS-3.5, Nuclear Power Plant Simulators for Use in Operator Training and Examination (revision of ANSI/ANS-3.5-2009)	in development by WG	ANS-21

(10) ANS-3.8.1, Criteria for Radiological Emergency Response Functions and Organizations for Nuclear Facilities (reinvigoration of historic standard ANSI/ANS-3.8.1-1995)	to be initiated after ANS-3.8.7 drafted	ANS-26
(11) ANS-3.8.2, Criteria for Functional and Physical Characteristics of Radiological Emergency Response Facilities at Nuclear Facilities (reinvigoration of historic standard ANSI/ANS-3.8.2-1995)	to be initiated after ANS-3.8.7 drafted	ANS-26
(12) ANS-3.8.3, Criteria for Radiological Emergency Response Plans and Implementing Procedures and Maintaining Emergency Response Capability for Nuclear Facilities (reinvigoration and consolidation of historic standards ANSI/ANS-3.8.3-1995 and ANSI/ANS-3.8.4-1995)	to be initiated after ANS-3.8.7 drafted	ANS-26
(13) ANS-3.8.6, Criteria for the Conduct of Offsite Radiological Assessment for Emergency Response and Emergency Radiological Field Monitoring, Sampling and Analysis for Nuclear Facilities (reinvigoration and consolidation of historic standards ANSI/ANS-3.8.5-1992 and ANSI/ANS-3.8.6-1995)	to be initiated after ANS-3.8.7 drafted	ANS-26
(14) ANS-3.8.7, Criteria for Planning, Development, Conduct, and Evaluation of Drills and Exercises for Emergency Preparedness at Nuclear Facilities (reinvigoration of historic standard ANSI/ANS-3.8.7-1998)	in development by WG	ANS-26
(15) ANS-3.8.10, Criteria for Modeling Real-time Accidental Release Consequences at Nuclear Facilities (new standard)	in development by WG	ANS-24
(16) ANS-18.1, Radioactive Source Term for Normal Operation of Light Water Reactors (reinvigoration of historical standard ANSI/ANS-18.1-1999)	in development by WG	ANS-24
(17) ANS-51.10, Auxiliary Feedwater System for Pressurized Water Reactors (revision of ANSI/ANS-51.10-1991 (R2008))	in development by WG	ANS-22
(18) ANS-54.1, General Safety Design Criteria for a Liquid Sodium Reactor Nuclear Power Plants (reinvigoration of historical standard ANSI/ANS-54.1-1989)	in development by WG	ANS-29
(19) ANS-56.8, Containment System Leakage Testing Requirements (revision of ANSI/ANS-56.8-2002)	in development by WG	ANS-21
(20) ANS-58.8, Time Response Design Criteria for Safety-Related Operator Actions (revision of ANSI/ANS-58.8-1994 (R2008))	in development by WG	ANS-22
(21) ANS-58.16, Safety Classification and Design Criteria for Non-Reactor Nuclear Facilities (new standard)	in development by WG	ANS-22

B. Standards and Draft Standards at Ballot or Comment Resolution (3)	**Status**	**SC**
(1) ANS-2.21, Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink (new standard)	resolving comments/revising draft	ANS-25
(2) ANS-3.2, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants (revision of ANSI/ANS-3.2-2006)	at ballot with due date of 11/12/11	ANS-21
(3) ANS-41.5, Verification and Validation of Radiological Data for Use in Waste Management and Environmental Remediation (new standard)	recirculation ballot issued to NFSC; extended due date 10/30/11	ANS-24

NFSC Chairman's Report to the Standards Board

November 1, 2011, Meeting ● Washington, D.C.

C. Standards Approved by NFSC/SB/ANSI (3)	Status	SC
(1) ANS-53.1, Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants (new standard)	with SB for certification	ANS-28
(2) ANSI/ANS-56.8-2002 (R2011), Containment System Leakage Testing Requirements (reaffirmation)	reaffirmation approved by ANSI 8/9/11	ANS-21
(3) ANSI/ANS-57.8-1995 (R2011), Fuel Assembly Identification (reaffirmation)	reaffirmation approved by ANSI 8/26/11	ANS-27

D. Standards in Publication Process (2)	Status	SC
(1) ANSI/ANS-5.4-2011, Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel (reinvigoration of historical standard ANSI/ANS-5.4-1982)	approved by ANSI 5/19/11 and in production	ANS-24
(2) ANSI/ANS-58.14-2011, Safety and Pressure Integrity Classification Criteria for Light Water Reactors (reinvigoration of historical standard ANSI/ANS-58.14-1993)	approved by ANSI 4/22/11 and in production	ANS-22

III. Standards Inquiries (3)

A. Responses to Standards Inquiries (3)	Status	SC
(1) ANSI/ANS-2.26-2004 (R2010), Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design (Inquiry received 6/28/11)	responses being drafted by working group	ANS-22
(3) ANSI/ANS-58.2-1988, Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture (Inquiry received 5/21/10)	information not found; additional resources being checked	ANS-24
(4) ANSI/ANS-58.14-1993, Safety and Pressure Integrity Classification Criteria for Light Water Reactors (Inquiry received 1/24/11)	issued 7/25/2011	ANS-22

IV. Delinquent Standards (10)

A. Maintenance of Delinquent Standards (10)	Status	SC
(1) ANSI/ANS-2.2-2002, Earthquake Instrumentation Criteria for Nuclear Power Plants	revision in development	ANS-25
(2) ANSI/ANS-2.10-2003, Criteria for the Handling and Initial Evaluation of Records from Nuclear Power Plant Seismic Instrumentation	new WG chair	ANS-21
(3) ANSI/ANS-3.2-2006, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants	revision at ballot open until 11/12/11	ANS-21
(4) ANSI/ANS-3.4-1996 (R2002), Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants	revision in development -- reaffirmation not deemed appropriate	ANS-21
(5) ANSI/ANS-5.10-1998 (R2006), Airborne Release Fractions at Non-Reactor Nuclear Facilities	new WG chair	ANS-24
(6) ANSI/ANS-57.1-1992 (R2005), Design Requirements for Light Water Reactor Fuel Handling Systems	inactive WG	ANS-27
(7) ANSI/ANS-57.5-1996 (R2006), Light Water Reactors Fuel Assembly Mechanical Design and Evaluation	inactive WG	ANS-22
(8) ANSI/ANS-57.10-1996 (R2006), Design Criteria for Consolidation of LWR Spent Fuel	inactive WG	ANS-27
(9) ANSI/ANS-58.11-1995 (R2002), Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors	inactive WG	ANS-22
(10) ANSI/ANS-59.3-1992 (R2002), Nuclear Safety Criteria for Control Air Systems	inactive WG	ANS-22

Attachment K

Staff Report
October 2011

Standards Development

Year-to-date, we have received approval of the American National Standards Institute (ANSI) of three new standards, two revised standards, and six reaffirmations of current standards. ANSI approvals include the following:

- ANSI/ANS-2.3-2011, "Estimating Tornado, Hurricane, and Extreme Straight Line Wind Characteristics at Nuclear Facility Sites," (new standard)
- ANSI/ANS-5.4-2011, "Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel," (new standard)
- ANSI/ANS-8.12- 1987 (R2011), "Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors," (reaffirmation of current standard)
- ANSI/ANS-8.21-1995 (R20110), "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors," (reaffirmation of current standard)
- ANSI/ANS-19.1-2002 (R2011), "Nuclear Data Sets for Reactor Design Calculations," (reaffirmation of current standard)
- ANSI/ANS-19.3-2011, "Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors," (revision of current standard)
- ANSI/ANS-19.6.1-2011, "Reload Startup Physics Tests for Pressurized Water Reactors," (revision of current standard)
- ANSI/ANS-19.11-1997 (R2011), "Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Water Moderated Power Reactors," (reaffirmation of current standard)
- ANSI/ANS-56.8-2002 (R2011), "Containment System Leakage Testing Requirements," (reaffirmation of current standard)
- ANSI/ANS-57.8-1995 (R2011), "Fuel Assembly Identification," (reaffirmation of current standard)
- ANSI/ANS-58.14-2011, "Safety and Pressure Integrity Classification Criteria for Light Water Reactors," (new standard)

ANSI approval of new standard ANS-53.1, "Nuclear Safety Design Process for Modular Helium-Cooled Reactor Plants," is anticipated by the end of this year as well as approval of three additional reaffirmations of current standards.

Three standards have been published this year, and three additional standards are in production. Twelve standards were issued for public review, and four responses to inquiries on standards were released. One of these inquiries identified an error in ANSI/ANS-5.1-2005, "Decay Heat Power in Light Water Reactors," resulting in the release of an erratum. The Standards Committee approved the initiation of fifteen new and revised standards projects.

Standards Committee News

Charlotta E. Sanders was appointed the new chair of the ANS-6 Subcommittee, Radiation Protection and Shielding, effective July 7, 2011. The ANS-6 Subcommittee is one of six subcommittees under N17 Consensus Committee on Research Reactors, Reactor Physics, Radiation Shielding and Computational Methods.

Grant Activities

The U.S. Nuclear Regulatory Commission issued ANS a grant for development of three probabilistic risk assessment (PRA) standards being developed by the ANS Risk Informed Standards Committee (RISC) to address low power and shutdown, accident progression and source term analysis (Level 2 PRA), and consequence analysis (Level 3 PRA). Numerous working group meetings were held this year. All three working groups have completed drafts that were issued for review--each receiving hundreds of comments for resolution. With substantive changes to all drafts, all will require additional ballots to gain consensus.

Formation of ANS/ASME Joint Consensus Committee

The ANS RISC and the ASME Committee on Nuclear Risk Management (CNRM) continue to work together on PRA process standards. A proposal is in the works for the RISC and the CNRM responsibilities for risk management to be merged to form a joint committee. The merger would create a new consensus body called the Joint Committee on Nuclear Risk Management (JCNRM reporting to both the ANS and ASME standards boards. Procedures for conduct of business have been approved by RISC and CNRM. A memorandum of understanding has been drafted to define the scope of the JCNRM for approval by the ANS SB and ASME BNCS. Formalization of the merger is anticipated within the next few months.

Potential Formation of New ANS Consensus Committee

The Standard Board is considering the formation of a new consensus committee to be entitled the Risk Applications Standards Committee (RASC). The RASC would retain some of the initial scope of the previous RISC committee. The new CC would be responsible for the development and maintenance of standards that direct the application of nuclear risk management criteria to design, siting, construction, operation, decontamination and decommissioning, waste management, and environmental restoration for nuclear facilities.

Standards-Related Technical Sessions at ANS 2011 Winter Meeting

A panel entitled “Understanding Subsurface Radionuclide Contamination at Commercial Nuclear Power Plants–Panel,” will be held Wednesday morning, November 2, 2011. The panel will discuss recently published standard ANSI/ANS-2.17-2010, “Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Plants,” which summarizes the state-of-the-art in addressing issues related to the characterization, monitoring, and analysis of abnormal radionuclide releases and migration to groundwater.

A tutorial on proposed standard ANSI/ANS-10.7-201x, “Non-Real Time, High Integrity Software for the Nuclear Industry” will be held on Wednesday afternoon, November 2, 2011. This session will familiarize professionals with this proposed standard which provides quality assurance

criteria for non-real-time, high-integrity software developed for nuclear industry applications. Related standards will also be discussed.

Subcommittee ANS-8, Operations with Fissile Material Outside Reactors, will hold a standards forum on Thursday morning, November 4, 2011, to discuss various technical and administrative aspects of the approximately 20 national consensus standards under its purview.

A panel discussion on ANS standards activities related to small modular reactors will be held on Wednesday afternoon, November 2, 2011. This panel will introduce potential issues and discuss how the national and international standards processes are integrated to support these new concepts.

ANS Hosts NESCC Meeting during 2011 ANS Winter Meeting

A meeting of the Nuclear Energy Standards Coordination Collaborative (NESCC) will be held during the ANS Winter Meeting at the Omni Shoreham Hotel in Washington, D.C., on Thursday, November 3, 2011. The NESCC is a joint initiative of the American National Standards Institute and the National Institute for Standards and Technology to identify and respond to the current needs of the nuclear industry.

Standards Service Award

The Standards Board reviewed the criteria for the Standards Service Award at their meeting on June 26, 2011, during the ANS Annual Meeting in Hollywood, Florida. Members approved a motion removing the requirement of Society membership to be eligible for the award. The revised criteria for the award will be provided to the ANS Honors and Awards Committee and subsequently to the ANS Board of Directors for approval.

A decision was made not to issue an award for 2011 as Standards Board members felt candidate documentation was incomplete.

Standards Group Meeting at ANS

Two standards working group meetings were hosted at ANS this year.

Attachment L

Standards Sales Report

June 1 - October 15, 2011

Designation & Title of Standard	# Sold Paper/Electronic	Total Price
ANS-2.2-2002, Earthquake Instrumentation Criteria for Nuclear Power Plants (RV of 2.2-1988)	0/2	88.00
ANS-2.3-1983;W1993, Standard for Estimating Tornado and Extreme Wind Characteristics at Nuclear Power Sites	1	62.00
ANS-2.3-2011, Estimating Tornado, Hurricane, and Extreme Straight Line Wind Characteristics at Nuclear Power Plants	5/7	649.60
ANS-2.5-1984;R1990;W2001, Standard for Determining Meteorological Information at Nuclear Power Sites	1	44.00
ANS-2.8-1992;W2002, Determining Design Basis Flooding at Power Reactor Sites	1	122.40
ANS-2.17-2010, Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Plants	8	817.50
ANS-2.26-2004;R2010, Categorization of Nuclear Facility Structures, Systems, and Components For Seismic Design	1/3	376.00
ANS-2.27-2008, Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments	0/3	288.00
ANS-2.29-2008, Probabilistic Seismic Hazard Analysis	1/5	654.00
ANS-3.1-1993;R1999;W2009, Selection, Qualification Training of Personnel for Nuclear Power Plants	4	269.10
ANS-3.4-1983;R1988; W1996, Medical Certification and Monitoring of Personnel Requiring Operator LTC	1	33.30
ANS-3.4-1996;R2002, Medical Certification and Monitoring of Personnel Requiring Operator LTC	2	88.00
ANS-3.5-1998;W2008, Nuclear Power Plant Simulators for Use in Operator Training and Examination	1	87.00
ANS-3.5-2009, Nuclear Power Plant Simulators for Use in Operator Training and Examination	7/9	1,488.00
ANS-3.11-2000;W2005, Determining Meteorological Information at Nuclear Facilities	0/1	91.80
ANS-3.11-2005;R2010, Determining Meteorological Information at Nuclear Facilities	0/3	288.90
ANS-5.1-1994;W2004, Decay Heat Power in Light Water Reactors	1	108.00
ANS-5.1-2005, Decay Heat Power in Light Water Reactors	1/7	948.00
ANS-5.10-1998;R2006, Airborne Release Fractions at Non-Reactor Nuclear Facilities	1	104.00
ANS-6.4-2006, Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants	1/1	311.60
ANS-6.4.2-2006, Specifications for Radiation Shielding Materials	1/2	179.80
ANS-6.4.3-1991;W2001, Gamma-Ray Attenuation Coefficients and Buildup Factors for Engineering Materials	4	699.20
ANS/IEEE-7.4.3.2-1982;R1990, Application Criteria for Programmable Digital Computer in Safety Systems of Nuclear Power Generating Stations	1	45.00
ANS-8.1-1983;R1988;W1998, Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	1	69.00
ANS-8.1-1998;R2007, Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	33/1	1,987.50
ANS-8.3-1997;R2003, Criticality Accident Alarm Systems	0/2	162.00
ANS-8.5-1986;W1996, Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material	1	45.00

ANS-8.6-1983;R1988;R1995;R2001;R2010, Safety in Conducting Subcritical Neutron-Multiplication	4	90.00
ANS-8.7-1975;R1987;W1997, Guide for Nuclear Criticality Safety in the Storage of Fissile Materials	1	69.00
ANS-8.15-1981;R1987;R1995;R2005, Nuclear Criticality Control of Special Actinide Elements	1	69.00
ANS-8.17-2004;R2009, Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors	1/1	74.00
ANS-8.19-1984;R1989;W1996, Administrative Practices for Nuclear Criticality Safety	1	20.00
ANS-8.19-2005, Administrative Practices for Nuclear Criticality Safety	6	151.90
ANS-8.20-1991;R1999;R2005, Nuclear Criticality Training	1	37.00
ANS-8.23-2007, Nuclear Criticality Accident Emergency Planning and Response	1	94.00
ANS-8.24-2007, Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations	9	609.00
ANS-8.26-2007, Criticality Safety Engineer Training and Qualification Program	2/1	89.90
ANS-8.27-2008, Burnup Credit for LWR Fuel	0/1	37.00
ANS-10.4-1987;R1998;W2008, Guidelines for the Verification and Validation of Scientific and Engineering Computer Programs in the Nuclear Industry	0/1	109.00
ANS-10.4-2008, Verification and Validation of Non-Safety Related Scientific and Engineering Computer Programs for the Nuclear Industry	1	103.00
ANS-10.5-1994;W2004, Accommodating User Needs in Computer Program Development	0/1	44.00
ANS-14.1-2004;R2009, Operation of Fast Pulse Reactors	1	37.00
ANS-15.1-2007, The Development of Technical Specifications for Research Reactors	0/3	210.00
ANS-15.2-1999;R2009, Quality Control for Plate-Type Uranium-Aluminum Fuel Elements	2	90.00
ANS-15.4-2007, Selection and Training of Personnel for Research Reactors	0/2	106.40
ANS-15.7-1977;R1986;W1996, Research Reactor Site Evaluation	1	45.00
ANS-15.8-1976;R1986;W1995, Quality Assurance Program Requirements for Research Reactors	1	27.90
ANS-15.8-1995;R2005, Quality Assurance Program Requirements for Research Reactors	4	195.00
ANS-15.10-1994;W2004, Decommissioning of Research Reactors	1	84.60
ANS-15.11-2009, Radiation Protection at Research Reactors	0/3	274.40
ANS-15.12-1977;W1987 (N647), Design Objectives for and Monitoring of Systems Controlling Research Reactor Effluents	1	22.50
ANS-15.15-1978;R1986;W1996, Criteria for the Reactor Safety Systems of Research Reactors	1	45.00
ANS-15.16-2008, Emergency Planning for Research Reactors	2/1	140.00
ANS-15.17-1981;R1987;R2000;W2010, Fire Protection Program Criteria for Research Reactors	1	33.30
ANS-15.19-1991;W2001, Shipment and Receipt of SWM by Research Reactor Facilities	1	67.50
ANS-15.21-1996;R2006, Format and Content for Safety Analysis Reports for Research Reactors	2	207.00
ANS-16.1-2003;R2008, Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure	0/1	107.00
ANS-18.1-1999;W2009, Radioactive Source Term for Normal Operation of Light Water Reactors	1	75.00

ANS-19.3.4-2002;R2008, The Determination of Thermal Energy Deposition Rates in Nuclear Reactors	1/1	79.20
ANS-19.4-1976;R1983;R1989;R2000;W2010, A Guide for Acquisition and Documentation of Reference Power Reactor Physics Measurements for Nuclear Analysis Verification	1	55.80
ANS-19.6.1-2005, Reload Startup Physics Test for Pressurized Water Reactors	0/1	94.00
ANS-19.6.1-2011, Reload Startup Physics Tests for Pressurized Water Reactors	3/2	451.20
ANS-19.10-2009, Methods for Determining Neutron Fluence in BWR	1	43.00
ANS-19.11-1997;R2002;R2011, Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Water Moderated Power Reactors	1	75.00
ANS-40.35-1991;W2001, Volume Reduction of Low-Level Radioactive Waste or Mixed Waste	1	87.00
ANS-51.1-1983;R1988;W2000, Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants	2	332.00
ANS-55.1-1992;R2000;R2009, Solid Radioactive Waste Processing System for Light-Water-Cooled Reactor Plants	1	117.00
ANS-55.4-1993;R1999;R2007, Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants	2	193.80
ANS-55.6-1993;R1999;R2007, Liquid Radioactive Waste Processing System for Light Water Reactor Plants	1	104.00
ANS-57.1-1980;W1990, Design Requirements for Light Water Reactor Fuel Handling Systems	1	56.00
ANS-57.1-1992;R1998;R2005, Design Requirements for Light Water Reactor Fuel (RV of 57.1-1980)	2	106.40
ANS-57.2-1983,W1999;R2006, Design Requirements for LWR Spent Fuel Facilities at NPPs	1	99.00
ANS-57.5-1996;R2006, Light Water Reactors Fuel Assembly Mechanical Design and Evaluation	2	138.00
ANS-57.7-1988,R1997;W2007, Design Criteria for an Independent Spent Fuel Storage Installation (Water Pool Type)	1	117.00
ANS-57.9-1992;R2000;W2010, Design Criteria for an Independent Spent Fuel Storage Installation (Dry Type)	0/1	124.20
ANS-58.2-1988;W1998, Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture	2	271.80
ANS-58.4-1979;W1990, Criteria for Technical Specifications for Nuclear Power Stations	1	75.00
ANS-58.6-1996;R2001, Criteria for Remote Shutdown for Light Water Reactors	1	44.00
ANS-58.8-1984;W1994, Time Response Design Criteria for Nuclear Safety Related Operator Actions	1	50.40
ANS-58.8-1994;R2001;R2008, Time Response Design Criteria for Safety-Related Operator Actions	1	69.00
ANS-59.3-1984;W1992, Safety Criteria for Control Air Systems	1	33.30
Misc Standards – Historical & Drafts	9	681.00
GRAND TOTAL		**16,968.20**

**Any totals showing as x / x - The first number is for the quantity sold of a hard copy of the actual standard and the second number represents the quantity of electronic versions of the standard sold.

Attachment M

PRSC (Power Reactor SC)	NRFSC (NonReactor Facility SC)	RRSC (Research Reactor SC)	Analysis & Computations SC)	CSSC (Criticality Safety SC)	SCSC (Site Characterization SC)	WMSC (Waste Management SC)	R&RSC (Restoration & Remediation SC)	RASC (Risk Application SC)
								2.16-(NEW) Criteria for Modeling Design-Basis Accidental Releases From Nuclear Facilities
ANS 21- Reactor Design Criteria	ANS 30- Fuel Fabrication Facility Design Criteria	ANS 1- Conduct of Critical Experiments	ANS 10- Power Reactor Physics and Computation	ANS 8- Fissionable Material Outside Reactors	ANS 2- Nuclear Facility Site Charaterization			
ANS 22- System Design Criteria	ANS 30.1- FFF System Design Criteria	ANS 14- Fast Pulse Reactors	ANS 6- Radiation Protectio and Shielding					2.29-2008 Probabilistic Seismic Hazard Analysis
								3.8.10-(NEW) Criteria for Modeling Real-Time Accidental Release Consequences at Nuclear Facilities
ANS 23 Reactor Operations	ANS 31 Chemical Processing Facility Design Criteria	ANS 15- Research Reactor Operations						
ANS 24- Training and Qualification	ANS 31.1- CPF System Design Criteria	ANS 19- Research Reactor Physics and Computation						
ANS 25- Reactor Decommissioning								
ANS 26- Advanced Initiatives								
Stds from NFSC								
23	3		10		9	11		3

XXX - New Subcommittees

XXX- Existing Working Groups