

**American Nuclear Society (ANS)
Standards Board (SB) Minutes
San Diego, CA
June 15, 2010**

Members Present

N. Prasad Kadambi, *Standards Board Chair, Individual*
Donald J. Spellman, *Standards Board Vice-Chair, Oak Ridge National Laboratory*
Robert J. Budnitz, *RISC Chair, Lawrence Berkeley National Laboratory*
Carl A. Mazzola, *NFSC Chair, Shaw Environmental and Infrastructure, Inc.*
Charles H. (Chuck) Moseley, *Member at Large, Individual*
Peter S. Hastings, *Member at Large, Duke Energy*
Calvin M. Hopper, *N16 Chair, Individual*
Mathew M. Panicker, *Member at Large, U.S. Nuclear Regulatory Commission*
Patricia A. Schroeder, *Standards Board Secretary, American Nuclear Society*
Steven L. Stamm, *Member at Large, Shaw Nuclear Services*
James H. Riley, *Liaison, Nuclear Energy Institute*
R. Michael Ruby, *Member at Large, Constellation Energy-Ginna NPP*
R. Michael Westfall, *Member at Large, Oak Ridge National Laboratory*
Michael J. Wright, *Member at Large, Entergy*

Members Absent

Dimitrios M. Cokinos, *Member at Large, Brookhaven National Laboratory*
Walter M. Justice, *Member at Large, Tennessee Valley Authority*
Herbert W. Massie, *Member at Large, Defense Nuclear Facilities Safety Board*
Tawfik M. Raby, *N17 Chair, National Institute of Standards & Technology*

Guests

Paul J. Amico, *Science Applications International Corporation*
James K. August, *CORE, Inc.*
William H. Bell, *South Carolina Electric & Gas Co.*
Timothy Dennis, *Individual*
Mary Beth Gardner, *American Nuclear Society*
James F. Mallay, *Individual*
Caroline M. McAndrews, *Southern California Edison*
Craig Piercy, *American Nuclear Society*
William B. Reuland, *Individual*
Alden N. Tschaeché, *Individual*
William M. Turkowski, *Westinghouse*

1. Welcome and Introductions

Introductions were made, and Standards Board Chair Prasad Kadambi welcomed the members. Kadambi offered personal thanks to Michael Westfall and Dimitrios Cokinos for having served on the Standards Board for many years. He explained that Caroline McAndrews and William Turkowski would be filling their spots. Kadambi stated that that the industry was going through a period that required us to look at our efforts strategically.

2. Approve Agenda

The agenda was approved as presented.

3. Standards Board Chair's Report

A. Results from Board of Directors (BOD) Presentation

Prasad Kadambi reminded the members that the ANS BOD met on Saturday before the start of the ANS general meeting. He provided a report on behalf of the Standards Committee (Attachment A). The report was a general update of standards activities and included the following motion for BOD approval regarding the formation of a joint committee called the Joint Committee on Nuclear Risk Management (JCNRM):

MOTION:

Concur with the Standards Board that a new consensus body called the Joint Committee on Nuclear Risk Management (JCNRM) should be formed reporting concurrently to the Standards Board of ANS and the Board of Nuclear Codes and Standards of ASME.

Recognize that formation of the JCNRM reduces from four to three the consensus bodies within the ANS Standards Committee.

Kadambi reported that the BOD concurred with the SB on the formation of the new consensus body to be formed by the merger of the ANS Risk Informed Standards Committee (RISC) with the American Society of Mechanical Engineers (ASME) Committee on Nuclear Risk Management (CNRM) that would report to both the ANS SB and ASME Board of Nuclear Codes and Standards (BNCS). The BOD recognized that the formation of the JCNRM would reduce ANS consensus committees from four to three.

Kadambi stated that the motion was approved by the BOD without opposition. Before approving the motion, a few questions were asked. The BOD wanted to know how revenue sharing would work. Kadambi stated that he explained that there was already an agreement in place for the Level 1 Probabilistic Risk Assessment (PRA) standard that was anticipated to be maintained. Open issues related to equity, scope, and administrative responsibilities were still to be addressed.

B. Report on ANS Changes

Prasad Kadambi believed that we would all be affected one way or the other with the ongoing restructuring of ANS. One change was the move of the BOD meeting and the request not to hold committee meetings on Monday. Kadambi stated that the Standards Committee had adjusted their meetings as best as possible. He thought that the restriction on Monday meetings would be continued. For the upcoming November meeting, he suggested scheduling meetings around Monday at the site of the meeting.

Kadambi provided a report on the Special Committee on Integration Oversight headed by John McGaha. He explained that he participated on the group as an observer. The committee identified two areas within ANS that needed improvement: 1) encouraging participation of new members; and, 2) enhancing the value proposition (i.e., value of membership) especially for utility professionals.

Kadambi explained that a few months ago we were notified through the American National Standards Institute (ANSI) of a competition for young professionals to attend the International Electrotechnical Commission Meeting in October 2010. An announcement of the competition was made through the ANS Young Member Group and North American Young Generation in Nuclear e-broadcasts, and two nominations were sent to ANSI on behalf of the Standards Committee.

Kadambi informed members of a trade conference to be held in Brazil that was being organized through the Department of Commerce. ANS was contacted to provide a representative to speak at the conference. Kadambi explained that he offered his services to represent ANS. Meeting details were still being finalized.

C. Report on Nuclear Energy Institute (NEI) Meeting of May 6, 2010

Prasad Kadambi stated that while he was chair, he was trying hard to establish contacts and channels of communication with ANS stakeholders including NEI, NRC, ASME, etc. In that regard, he requested and held a meeting with NEI on May 6, 2010. Kadambi referenced an old sentiment shared by some that there was a level of conflict between ANS and NEI on matters related to standards. It was his intent to bring this out into the open and address the issue. Although NEI and ANS serve different functions, Kadambi believed that the country benefited when each played within their respective roles. On international matters, we want to make sure we present a coherent position. These were the types of issues discussed. Kadambi stated that James Riley and Alex Marion participated in the meeting. He felt that they recognized that ANS and NEI served different needs. Riley agreed and stated that NEI was in the process of developing a white paper on their role in standards. They recognized that NEI provides guidance documents, and ANS developed standards. NEI worked within different activities to add value to the industry. NEI becomes involved in something when it was a generic, urgent need related to a regulatory issue considered a hot-button issue. Riley doesn't see problem with any standard development organization (SDO) writing a standard that incorporates their guidance. Kadambi felt that, given good will on both sides, we could work together to support the industry.

D. Report on Meeting with NRC Standards Executive on June 3, 2010

Prasad Kadambi reported that he met with Michael Case, the NRC Standards Executive, on June 3, 2010, on the matter of endorsement. He stated that as a Standards Committee we would like to resolve any discord in technical positions with NRC before a standard was finalized. Sometimes this may require ANS Standards Committee leadership to be able to go back to the NRC management to get a staff position so that issues could be resolved prior to issuing a standard. Kadambi explained that, the issue arises occasionally that an NRC representative on a working group, responsible for determining the NRC position and comment accordingly on a standard, is able only to reflect his/her personal position. If the working group leadership felt that there was merit to pursuing a better understanding of the NRC staff position, we would like a mechanism for the working group to elevate the issues up the hierarchy within the Standards Committee and enable the SB to request an open meeting to resolve potential differences. Kadambi reported that Case was in broad agreement with this approach.

E. Realignment of the Standards Board and its Activities

Prasad Kadambi stated that there were two actions that he had taken as personal initiatives to reflect his own view of the strategic direction that was needed. The first was broadening the Standards Board. He was trying to address small modular reactors (SMR). He thought that we would need a top-down approach beginning with a safety case. Once a safety case was designed, you could break it up and determine what standards were needed to be developed. Kadambi stated that he requested Peter Hastings to take up this concept on behalf of the SB in this area. Hastings stated that this issue links in part to discussion on NEI vs. ANS and how to harmonize these roles. He committed to work on this effort in the near term.

Action Item 6/10-01: Peter Hastings to work with Prasad Kadambi on the concept of a safety case for SMRs and other ideas to increase engagement of the ANS Standards Committee in SMR activities.

Kadambi explained that the other initiative was along the lines of the value proposition for utility professionals. In this effort, he wanted for ANS to offer some kind of a training program that benefits utility employees. He envisioned training that would prepare individuals on a conceptual and philosophical level on the concepts of PRA and related regulatory documents to apply ANS standards more effectively. Kadambi stated that he asked Mathew Panicker to help develop and implement the training idea as he had experience in this area. Kadambi wanted to put together a free tutorial session at the Utility Working Conference being held at Amelia Island, Florida, this August. He explained that he had also been in contact with Robert Budnitz and that he would be taking it up with the RISC at their meeting tomorrow.

Action Item 6/10-02: Mathew Panicker to support Prasad Kadambi in developing training for standards.

Action Item 6/10-03: Robert Budnitz to ask RISC members to support a free tutorial session at the utility conference in August 2010 at Amelia Island, Florida.

Kadambi stated that we needed to move quickly to put together a small tutorial in August at Amelia Island. Steve Stamm thought that it was a good opportunity for ANS in the training area and suggested that online classes be considered as a source of revenue. Budnitz felt that training was an acceptable idea but questioned whether it could be arranged in time and if the right people would be able to commit. Kadambi recognized that members were favorable to the idea provided that the right method and individuals were found.

4. Nuclear Energy Standards Coordination Collaborative (NESCC)

Prasad Kadambi reported on the last NESCC meeting held on May 26, 2010, at the National Institute of Standards & Technology (NIST) offices. He reported that he attended the all-day meeting representing ANS. Kadambi explained that the NESCC liked to create task groups with representatives from SDOs and key stakeholders to work on specific projects. A task group had recently been approved to create a database of standards that had received some sort of review by the U.S. Nuclear Regulatory Commission (NRC). Kadambi stated that Andrea Valentin with the NRC was in charge of the database task group. The NRC was in the process of finding a contractor to build the database based on input from the various stakeholders and user community. The NRC asked for people that would be the primary users to write up “use cases” to help develop the right format for the database. Kadambi noted that he thought Jim August was planning to prepare a “use case.” August thought that it would take at least 40 hours to prepare a good “use case” because it could outline the specifications for the database. At present, August saw the database constructed specifically for regulatory purposes. Michael Wright didn’t see a purpose from the utility stand point. Peter Hastings added that he saw it as being counter productive. August stated that the focus of the database was for new construction. Kadambi asked members to look at the database as a collection of factual information, and we should make sure that ANS standards were incorporated correctly. Kadambi suggested that we be open to the effort before judging whether it will be good or bad. Kadambi informed members that a template for the database was available at www.standards.gov.

Kadambi reported on a task group formed on concrete standards related to the containment and other issues. He stated that a report on digital instrumentation and controls (I & C) and piping was also provided. Kadambi explained that he was amazed to learn there had been significant issues with degraded pipes. James Riley confirmed that problems had not been safety significant, but that NEI was fully engaged on it.

Kadambi stated that the NESCC task groups could receive funding from the NRC or DOE with NIST administering the funds. Donald Spellman expressed concern with the NESCC as he felt that it was going off on a tangent from what it was developed to do. Kadambi noted that the NESCC was a work in progress.

William Turkowski requested more information about the NESCC.

Action Item 6/10-04: Pat Schroeder to send William Turkowski a link to the NESCC webpage.

5. Nuclear Risk Management Coordinating Committee (NRMCC)

As NRMCC Co-Chair, Chuck Moseley provided an update on NRMCC activities. He stated that since last November, the NRMCC had met twice, most recently in March of this year. Moseley acknowledged the loss of Allen Camp on the committee when he stepped down as RISC Chair due to an employment change. Robert Budnitz informed the SB that he agreed to serve out Camp's term and would continue temporarily until a new chair was installed. The new RISC Chair would automatically become a member of the NRMCC.

Budnitz was asked to explain the role of NRMCC, RISC/CNRM, and JCNRM. He explained that the NRMCC was an administrative, oversight committee chartered by ANS and ASME with NRC that was opened to all stakeholders to coordinate PRA standards. Currently the NRMCC was co-chaired by Moseley for ANS and Ken Balkey for ASME. Budnitz stated that the original motivation for the NRMCC was to coordinate efforts on PRA standards to reduce conflicts. The NRMCC determined the best way to develop needed standards in this area and made recommendations that were reported to the ANS SB and the ASME BNCS where the decisions were finalized. The NRMCC had no authority over each of the Societies but worked on good will.

Budnitz stated that the NRMCC had discussed the possibility of dissolution if the ANS RISC and the ASME CNRM merged. The consensus from the NRMCC was that their oversight would still be needed since JCNRM only addressed risk-informed standards.

Budnitz was asked to summarize a letter that was issued by the Nuclear Energy Institute (NEI) to ANS, ASME, and the NRC (see Attachment B). In his opinion, NEI opposed the initiation of the standard ANSI/ANS-58.21-2007, "External Events PRA Methodology," but it was developed anyway. NEI also opposed ANS-58.22, "Low Power and Shutdown PRA Methodology," (LPSD), currently in development. NEI's position was that we were rushing the PRA standards. NEI found that their utilities did not have the manpower to support the use of these standards, and Budnitz recognized this. By the NRC endorsing the standards immediately upon approval, they were made part of regulatory requirements.

James Riley confirmed that he heard similar concerns which were complicated by the standards becoming regulatory requirements before they had matured. Riley stated that the NEI would like pilot testing conducted on the standards prior to endorsement by the NRC. Budnitz informed members that they were actively trying to get a pilot on the LPSD standard. Budnitz recognized that ANSI/ANS-58.23-2007, "Fire PRA Methodology," was immediately incorporated into the combined standard and endorsed by the NRC prior to a pilot which caused great havoc in the industry. Some members thought that the standard should be issued on a trial use basis. The NEI letter requested that work was slowed on the LPSD standard (ANS-58.22), Level 2 PRA standard (ANS-58.24), and the Level 3 PRA standard (ANS-58.25). Kadambi stated that his feeling

was that the RISC had to first examine this carefully and report to the SB with a recommendation of what to do.

Action Item 6/10-05: Robert Budnitz to discuss NEI letter with RISC and propose a recommended response for SB consideration.

Kadambi felt that a response letter issued by ANS and ASME had merit, but he did not know ASME's intentions.

A suggestion was made to issue the next set of PRA standards for trial use. The members discussed this option. Pat Schroeder explained that ANSI dissolved their policy on trial use standards, not that they did not agree with the philosophy, but that they believed it should not be under their umbrella.

Budnitz stated that he would take the suggestion on the trial use standard to the RISC and posed the following motion:

MOTION: It is the sense of the Standards Board that trial use approaches may be appropriate in some circumstances and RISC is assigned to explore this method.

The motion was discussed and although members were not opposed, they did not feel that this action required a motion. Therefore, the motion was withdrawn.

6. Proposed Joint Committee on Nuclear Risk Management (JCNRM)

Prasad Kadambi recapped the status of the JCNRM and proposal to merge the ANS RISC with the ASME CNRM (see additional discussion under 3 A). Many SB discussions were held via e-mail and teleconference on the formation of the JCNRM. The discussions resulted in the SB majority approval in favor of carrying forward the joint committee subject to the resolution of the identified open issues. The merger of the two committees was approved by the ANS BOD and would also be approved by the ASME BNCS.

Budnitz reported that ASME agreed that the secretariat role would rotate every three years and be initiated with ASME taking the lead. They agreed that both boards would approve standards activities beginning with the Project Initiation Notification System (PINS) Form and that the composition of the JCNRM would meet the Balance of Interest (BOI) for both organizations. The two societies' policy on multiple representation were discussed. It was recognized that the ANS policy dictated members from the same organization to share one vote unless specific reasons were approved while ASME allowed two individuals from the same committee to each have a vote.

A. Tracking Resolution of ANS Standards Board Comments on JCNRM Procedures

Robert Budnitz confirmed that all comments submitted on the proposed JCNRM procedures were resolved. Prasad Kadambi recommended that SB members review any responses they received and the revised JCNRM procedures to make sure that their comments were incorporated. Budnitz stated that he would provide a formal version of the JCNRM procedures.

Action Item 6/10-06: Robert Budnitz to provide SB members a copy of the revised JCNRM procedures.

Budnitz explained that the merger would incorporate all members of RISC and CNRM which would total nearly 40 members, roughly five more than the procedures dictated. Membership would be reduced over time through natural attrition to 35.

7. 2010 Standards Service Award Selection

As chair of the Standards Service Award Ad hoc Committee, Chuck Moseley thanked Steve Stamm and Michael Wright for their support on the committee. He noted that they had two such outstanding candidates that they felt multiple awards were warranted this year. The ad hoc committee chose both Drs. Thomas McLaughlin and Allen Camp. The SB was in agreement with the decision. Moseley read the citations for each.

Moseley stated that one of the items usually taken at this meeting was to convene an ad hoc committee for the next year. Having previously consulted with Stamm and Wright, Moseley offered the group's services for 2011. The SB accepted the offer.

Action Item 6/10-07: Chuck Moseley, Steve Stamm, and Michael Wright to serve as the 2011 Standards Service Award Ad hoc Committee.
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8. Balance of Interest (BOI) Certification

A BOI report for all four consensus committees was provided to members ahead of the meeting (see Attachment C). Prasad Kadambi stated that he noticed the N16 Committee's report included two individuals from the U.S. Department of Energy that held separate votes. N16 Chair Calvin Hopper explained that these individuals had different responsibilities and perspectives. Hopper was requested to provide documentation for the two votes to keep on record.

Action Item 6/10-08: Calvin Hopper to provide documentation for the necessity of two DOE votes on N16.
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The following motion was made:

MOTION: The balance of Interest reports for all four consensus committees be approved, as presented.

The motion was approved unanimously.

9. Revised Policy on Developing Responses to Inquiries (see Attachment D)

Pat Schroeder summarized the new policy on responding to standards inquiries. She explained that the new policy dictated review by the SB Chair, consensus committee chair, and subcommittee chair for direction. If determined relevant and not a case interpretation, the subcommittee chair was responsible for managing the response based on the alternatives provided in the policy. Once a response was drafted and acceptable to the working group, it would need approval by its subcommittee, consensus committee, and SB procedural review before it was released to the inquirer.

Schroeder explained that the policy had already been implemented on a few recent inquiries. SB member and ANS-19 Subcommittee Chair Dimitrios Cokinos had concerns with the new policy and since he was unable to attend, he submitted his concerns in writing for SB consideration (see Attachment E). Schroeder explained that she thought Cokinos felt that there were cases

that a response did not require approval by its subcommittee or consensus committee as the response did not offer any new material and did not change the standard.

Hopper believed inquiries should be reviewed and the response drafted by the original authors when possible. Furthermore, he felt that it was important for responses to gain approval through the same consensus process that standards followed. With a majority of members in agreement, the following motion was made:

MOTION: To approve the revised policy on issuing responses to inquiries as presented in the meetings material on Pages 54, 55 & 56 and the revision of the Rules and Procedures on Page 57.

The motion was approved with one abstention by Prasad Kadambi.

10. Consensus Committee Reports (N16, N17, NFSC, RISC)

A. N16 Committee Report (see Attachment F)

N16 Chair, Calvin Hopper, directed members to the submitted committee report for the status of standards activities within N16. He explained that he intended to realign the committee. Hopper explained that N16 had a strong contingent of hard-core criticality engineers. He planned to expand the membership to include participation of other SDOs, NEI, etc. Hopper acknowledged the retirement of Thomas McLaughlin as ANS-8 Subcommittee Chair and replacement of Davis Reed in this position.

B. N17 Committee Report (see Attachment G)

In N17 Chair Tawfik Raby's absence, his written report was accepted.

C. Nuclear Facilities Standards Committee (NFSC) Report (see Attachment H)

NFSC Chair Carl Mazzola reported that the NFSC held a very successful meeting offsite at General Atomics the previous day. Mazzola reviewed the written report of committee progress on standards projects and cited several projects of significant interest to the industry. The historic standards dealing with emergency preparedness were being reinvigorated. Mazzola reported that a subcommittee to manage these standards was reconstituted, and a working group to initiate the project was populated. He explained that most of the delinquent standards did not have active working groups as expert volunteers were not available. It was possible that some of the delinquent standards would be withdrawn due to the inability to perform maintenance. Members recognized that there was nothing prohibiting the use of a withdrawn standard.

D. Risk Informed Standards Committee (RISC) Report (see Attachment I)

RISC Chair, Robert Budnitz, updated members on committee activities. He explained that draft standard ANS-58.22, "Low Power and Shutdown PRA Methodology," was initially balloted several years ago resulting in numerous comments. A second draft was issued for ballot a little more than a year ago producing hundreds of comments. With comment responses nearly resolved, he anticipated that a third ballot would be issued shortly. Budnitz reminded members that ANS-58.22 would be released as a stand alone standard and then incorporated into the ASME/ANS combined standard.

Budnitz anticipated that draft standard ANS-58.24, "Severe Accident Progression and Radiological Release (Level 2) PRA Methodology to Support Nuclear Installation Applications," would be issued for ballot by the November 2010 ANS meeting. The working group for, ANS-

58.25, "Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications," was meeting the following day and expected to finalize the draft within a couple months. Budnitz confirmed that all drafts would be sent to ASME for comments. The formation of JCNRM would not delay balloting.

Budnitz stated that the CNRM anticipated releasing two PRA draft standards for ballot shortly. The first one was for light water reactors (LWR) under construction and the other for non-LWRs under construction. He said that CNRM decided that SMRs were too diverse to adapt a standard generically.

Budnitz reported that the CNRM and RISC had been operating well together without formally being a joint committee. The RISC met with CNRM in February 2010, and the CNRM were invited to tomorrow's RISC meeting.

Budnitz noted that they had received inquiries from many individuals expressing interest in participating on the RISC but that they had not been able to accommodate. He mentioned that additional standards were considered but that the committee felt they already had too much on their plate.

11. Discuss and Resolve Action Items

Open action items were discussed and closed if completed. A list of action items and their status can be found at the end of these minutes. A few additional action items were assigned during the discussion.

Action Item 11/09-03 on increasing ANS international participation was discussed. Members questioned what the goal was. An additional action item was assigned to Donald Spellman to define what international participation was desired.

Action item 6/10-09: Donald Spellman to define what international participation is desired.

In completion of Action Item 11/09-06, a paper prepared by Jim August and Prasad Kadambi entitled "Consensus Standards in a Nuclear Industry Revival," was provided (see Attachment J). Members were given an opportunity to review. The paper had been provided to Craig Piercy. Although informative, Piercy felt that the paper was not pointed enough and did not specifically address what projects were in need of funds and how much was needed. Kadambi explained that he would use the paper for other purposes.

12. Secretary's Reports (see Attachment K)

A. Staff Report, Standards Reports, Sales Report

Several reports were provided to members with the meeting materials. Pat Schroeder summarized recent activities of the ANS Standards Department. Preliminary findings from the March 2010 ANSI audit were reviewed. A report of standard sales since the November 2009 meeting was included as well as the general reports for activity, status, and delinquent standards.

B. New PINS Forms/Letter Ballots

Members were provided an opportunity to comment on the PINS forms for the reinvigorations of the emergency preparedness standards under the NFSC.

13. Liaison Reports

A. Operations & Power Division (OPD)

Prasad Kadambi reported that the OPD approved a proposal focused on a session for vendors and how the *Code of Federal Regulations Chapter 10 Part 52* was working. Other issues discussed at the OPD meeting were general administrative matters.

B. Nuclear Energy Institute (NEI)

James Riley reported that Alex Marion was preparing a paper on how NEI can best participate in standards developing organizations. The paper would be approved by the Nuclear Strategic Issues Advisory Committee. Riley confirmed that the paper would be provided to the SB. He explained that NEI's purpose of participating on standards committees was to be informed and report standards actions to NEI staff and their members. It would then be up to the utilities to participate. Kadambi asked if there was a role for NEI to make recommendations for standards. Riley stated that it was possible on a case-by-case basis.

C. Washington Liaison

Prasad Kadambi introduced Craig Piercy as the ANS Washington Representative. Kadambi explained that he invited him to the meeting to update members on his activities. Piercy reported that he had been working closely with ANS President Tom Sanders. They have played up the need for SMR standards developed by ANS. A nuclear advocate effort was created. Piercy believed that their work provided greater recognition to ANS.

Spellman questioned Piercy on getting federal funding for standards development. Piercy felt that it could be possible if a specific standard that was in great need by the industry was identified. After discussing ways to identify these types of standards, the following motion was made:

Motion: For a special committee comprised of the Standards Board Vice Chair and consensus committee chairs to develop on a yearly basis a list of priority standards that need funding from an outside source.

Motion approved unanimously.

Action Item 6/10-10: The Standards Board Vice Chair and consensus committee chairs to serve on an ad hoc committee to develop, on a yearly basis, a list of priority standards that are in need of funding from an outside source.
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D. International Organization for Standardization (ISO)

Michael Westfall reported that NIST had given up the secretariat role of Subcommittee (SC) 6, Reactor Technology, of the ISO Technical Committee (TC) 85. Several projects had lapsed as they did not meet the time period. An Excel spreadsheet had been developed of international experts by interest. Westfall explained that five participating ballot votes were needed to approve a work item. Working groups had a number of proposed projects on test reactors and reactor physics.

Calvin Hopper provided a report for SC 5, Nuclear Fuel Cycle. He stated that SC 5 was very active and had several working groups. Hopper explained that it would be helpful if funds were available to support participation. Every other year the full TC 85 meets. An invitation had been extended for SC 6 to meet in conjunction with the ANS meeting in Hollywood, Florida.

Kadambi stated that it would be useful to have something that goes step by step on how standards get developed and approved within TC 85. Westfall believed that US technology continued to be recognized as significant. For members' reference, he offered to provide TC 85's business plan.

Action Item 6/10-11: Mike Westfall to provide TC 85's business plan to the Standards Board for their reference (through Pat Schroeder).

E. Institute of Electrical and Electronics Engineers (IEEE)/Nuclear Power Engineering Committee (NPEC) (see Attachment L)

Donald Spellman provided a report of IEEE's NPEC activities. He stated that IEEE was getting very involved in the smart grid and in digital I & C. Although he hadn't been as involved as before, he would be attending the IEEE meeting the next month. Spellman would bring information to them about the NRMCC.

14. Other Business

Members discussed the need for new standards to support SMRs and questioned the maturity of technology in this area. Mike Westfall recalled an IAEA document on SMRs that included concept design and level and demonstration that might be a starting point. Prasad Kadambi informed members that there was a series of white papers on SMRs developed by a committee instituted by Tom Sanders. Kadambi offered to provide links to these documents.

Action Item 6/10-12: Prasad Kadambi to send link to series of SMRs white papers to the Standards Board (through Pat Schroeder).

15. Adjourn

The meeting was adjourned at 4:49 p.m.

**American Nuclear Society
Standards Board Action Items from ANS June 2010 Meeting**

Action Item	Description	Responsibility	Status
06/10-01	Peter Hastings to work with Prasad Kadambi on concept of a safety case for SMRs and other ideas to increase engagement of the ANS Standards Committee in SMR activities.	Peter Hastings, Prasad Kadambi	Open
06/10-02	Mathew Panicker to support Prasad Kadambi in developing training for standards.	Mathew Panicker, Prasad Kadambi	Open
06/10-03	Robert Budnitz to ask RISC members to support a free tutorial session at the utility conference in August 2010 at Amelia Island.	Robert Budnitz	Open (done)
06/10-04	Pat Schroeder to send William Turkowski a link to the NESCC webpage.	Pat Schroeder	Open (done)
06/10-05	Robert Budnitz to discuss NEI letter with RISC and propose a recommended response for SB consideration.	Robert Budnitz	Open
06/10-06	Robert Budnitz to provide SB members a copy of the revised JCNRM procedures.	Robert Budnitz	Open (done)
06/10-07	Chuck Moseley, Steve Stamm, and Michael Wright to serve as the 2011 Standards Service Award Ad hoc Committee.	Chuck Moseley, Steve Stamm, Michael Wright	Open
06/10-08	Calvin Hopper to provide documentation for the necessity of two DOE votes on N16.	Calvin Hopper	Open (done)
06/10-09	Donald Spellman to define what international participation is desired.	Donald Spellman	Open
06/10-10	The Standards Board Vice Chair and consensus committee chairs to serve on an ad hoc committee to develop, on a yearly basis, a list of priority standards that are in need of funding from an outside source.	Donald Spellman & consensus committee chairs	Open
06/10-11	Mike Westfall to provide TC 85's business plan to the Standards Board for their reference (through Pat Schroeder).	Mike Westfall	Open (done)
06/10-12	Prasad Kadambi to send link to series of SMRs white papers to the Standards Board (through Pat Schroeder).	Prasad Kadambi	Open
11/09-01	Prasad Kadambi and Pat Schroeder to draft a statement on clarifications and interpretations for inclusion in the foreword of all standards and consider need for practice to be included in a policy.	Prasad Kadambi, Pat Schroeder	Open
11/09-02	Consensus committee chairs to provide a list of draft standards that could be issued for public review within the next year for the NRC, DOE, and DNFSB.	Consensus Committee Chairs	CLOSED
11/09-03	Standards Board members provide ANS Standards Board Chair Prasad Kadambi with suggestions to increase ANS international participation.	Standards Board Members	Open
11/09-04	Consensus committee chairs to include status of delinquent standards in their committee reports.	Consensus Committee Chairs	CLOSED
11/09-05	Pat Schroeder to send Allen Camp a copy of the N16 training standard, ANSI/ANS-8.26-2007.	Pat Schroeder	CLOSED
11/09-06	Chuck Moseley to provide support to Jim August in preparing a standards position statement for Craig Piercy's reference in soliciting funding for standards development.	Chuck Moseley	CLOSED
11/09-07	Chuck Moseley to draft a statement to correct NFSC Policy and Procedures Section 7.3 statement on the use of "should" and "may" in an appendix.	Chuck Moseley	CLOSED
6/09-01	Standards Board member to be appointed to prepare a standards policy statement for Craig Piercy.	Prasad Kadambi	CLOSED
6/09-04	Don Spellman to incorporate international activities to facilitate global	Donald Spellman	CLOSED

	use of ANS standards.		
6/09-09	Standard Board members to review and comment on Calvin Hopper's suggested revision to the policy on clarification/interpretations.	Standards Board members	CLOSED
6/09-11	Chuck Moseley, Steve Stamm, and Mike Wright to serve as ad hoc committee for the 2010 Standards Service Award (ad hoc committee leader to be determined between members).	Chuck Moseley, Steve Stamm, Mike Wright	CLOSED
11/08-03	Allen Camp to provide update on NRMCC action item to follow up on education and training with ANS Education & Training Professional Division and ANS Student Workshops to the Standards Board through Pat Schroeder.	Allen Camp	CLOSED

ANS Standards Committee Activity Update



N. Prasad Kadambi
June 12, 2010

ANS Standards Committee

Outlook

- The ANS standards program is currently healthy but the outlook is uncertain.
- The cutting-edge work is being done on new technologies and risk methods, while we maintain the infrastructure for existing and evolutionary plants.
- The uneven trends and lack of resources for necessary initiatives are daunting challenges.
- Regulation changes impacted the Risk-Informed Standards Committee the most, but the outlook is affected by changes in many other directions.
- The Standards Board is facing the choice of exploring new activities or risk becoming irrelevant.

ANS Standards Committee

Outlook (Continued)

- ANS has partnered with ASME on PRA standards, and now, enthusiastic support exists for converting the partnership into a formal merger.
- A majority of the Standards Board members wish to proceed with the complex steps toward a merger.
- The proposed merger would create a new consensus body called the Joint Committee on Nuclear Risk Management (JCNRM) reporting to ANS and ASME.
- We seek BOD concurrence to proceed with the merger while we resolve certain open issues.
- We commit to return to the BOD should we be unable to resolve these issues.

Joint Committee on Nuclear Risk Management

Issues under Discussion

- Open issues fall into three categories:
 - Equity issues related to inputs and rewards
 - ASME can deploy more tangible assets to support JCNRM than ANS. How to equitably share in the costs and rewards?
 - Scope issues given significant overlaps
 - Almost every ANS standard in some way involves “risk management.” Find objective criteria to define scopes.
 - Consistency with accredited procedures
 - Balance Of Interest and representational rules somewhat different between ANS and ASME

ANS Standards Committee

Looking further ahead

- The Standards Board observes opportunities in the investments contemplated in small modular reactors (SMR).
- It may be possible to identify, develop and apply consensus standards systematically to assure more complete coverage of the safety case.
- To succeed in the new approach ANS may need to include activities such as conformity assessment in its standards program.
- The SB would keep the ANS BOD informed and seek assistance at the appropriate time as necessary.

Standards Committee

Highlights

- Published
 - ANSI/ANS-15.11-2009, "Radiation Protection at Research Reactors," and
 - ANSI/ANS-40.37-2009, "Mobile Low-Level Radioactive Waste Processing Systems."
- Issued for ballots and public review the following drafts:
 - ANS-2.17, "Evaluation of Radionuclide Transport in Ground Water for Nuclear Facilities"
 - ANS-2.21, "Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink"
 - ANS-5.4, "Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel"
- Initiated three standards projects:
 - ANS-8.3-20xx, "Criticality Accident Alarm System" (revision)
 - ANS-56.8-20xx, "Containment System Leakage Testing Requirements" (revision)
 - ANS-58.8-20xx, "Time Response Design Criteria for Safety-Related Operator Actions" (revision)

ANS Standards Committee

Activities

- The Nuclear Risk Management Coordination Committee (NRMCC), continues to enable ANS, ASME, and others to discuss and work through issues of mutual interest.
- The ANS has been an active participant of the Nuclear Energy Standards Coordination Collaborative (NESCC).
- A grant was awarded by the U.S. Nuclear Regulatory Commission in 2009 to pursue development of three PRA standards, which have been drafted and have undergone preliminary committee reviews. Formal committee ballots with parallel public review are anticipated by the end of the year.
- We continue to communicate with ANS Professional Divisions to increase awareness of the standards program and encourage participation.
- We strive to increase participation of industry organizations, government agencies, international liaisons and other SDOs.

Standards Committee

Highlights (continued)

- The ANS Standards Committee is doing its share to promote young member participation. We submitted two nominations on behalf of ANS in the 2010 International Electrotechnical Commission Young Professionals Competition.
- In March, 2010, the American National Standards Institute audited the ANS standards program. They found it to be well run but made recommendations for streamlining.
- As required by ANSI, the maintenance of a proper balance of interest in our four consensus committees is one of the major responsibilities of the ANS Standards Board.
- We will be reporting to the BOD our determination of BOI after we have discussed it during our meeting two days hence.



NUCLEAR ENERGY INSTITUTE

Attachment B

Anthony R. Pietrangelo
SENIOR VICE PRESIDENT
AND CHIEF NUCLEAR OFFICER

June 9, 2010

Dr. N. Prasad Kadambi
American Nuclear Society
15015 Notley Road
Silver Spring, MD 20905

Dear Dr. Kadambi:

Industry has supported efforts by standards development organizations (SDOs) to create consensus standards for probabilistic risk assessment (PRA). We have now had significant experience with the use of these standards in a regulatory context, and believe this experience merits careful consideration relative to future standards development processes and schedules. The SDOs have received considerable input from the U.S. Nuclear Regulatory Commission regarding the NRC's expectations for standards development. This letter provides input from the user community, and is based on discussions with the Nuclear Energy Institute's advisory structure including the Regulatory Process Working Group. This working group provides policy advice regarding the achievement of an improved regulatory environment, including consideration of risk informed processes, and the overall goal is a stable predictable safety focused regulatory approach. This group includes chief nuclear officers from several operating companies, both reactor vendor owners groups chairs, Electric Power Research Institute, and other senior industry representatives.

The working group was briefed in their last meeting on the overall direction and strategy for risk informed regulation. Based on the outcome of that discussion, the attached letter and attachments were provided to NRC on May 20, 2010. The attached letter provides a detailed discussion of industry observations on PRA standards development and their efficacy in enabling improved regulation. The letter notes the need for changes to the overall process and schedule for standards development. We request your review of this letter and your attention to the user community perspectives provided therein. Considerable effort was expended to develop a proposed process and schedule that takes into account lessons learned from existing efforts to apply PRA standards in a regulatory context.

To briefly summarize the attached letter, the user community's main points are as follows:

- We are at a crucial point in PRA standards development
- Industry is limited in its ability to pursue applications due to continually evolving regulatory expectations and standards expansion

June 9, 2010

Page 2

- Fire PRA has illustrated the pitfalls of premature application of PRA standards, absent full piloting and methods development
- Several years of additional methods development are now needed for fire PRA despite the existence of a final NRC approved PRA standard
- Used improperly, PRA can lead to regulatory instability and improper decision making
- No further standards should be finalized or endorsed by NRC until they are fully piloted, and underlying analysis methods are developed and accepted
- There is no compelling need to rapidly develop additional PRA standards at this time, including expanded PRA scopes or risk management standards
- The primary focus should be on correcting the fire and external events portions of the existing American Society of Mechanical Engineers/American Nuclear Society PRA standard
- A realistic schedule and process for additional standards development is proposed in Attachment 1 of the NRC letter

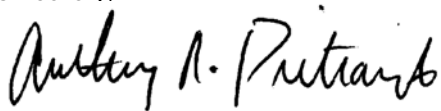
We believe the efforts of the SDOs in this area have been well intended, but we request your careful consideration of the user community perspectives provided above and in the attached NRC letter. The user community's needs merit particular attention if we are to achieve our mutual goal of widespread implementation of effective PRA standards.

We recommend that the current activities by the ANS and ASME PRA standards committees to create additional standards and further modify existing standards be put on hold until all stakeholders conduct an assessment of lessons learned. The overall approach and schedule for standards development should be re-evaluated. We continue to support risk-informed performance based regulatory improvement, in context with regulatory predictability and stability.

Industry's support of continued PRA standards development can continue if realistic expectations and considerations of lessons learned are factored into the process. To that end we would be happy to meet with you to discuss these issues further.

Please contact me if you have any questions.

Sincerely,



Anthony R. Pietrangelo

Attachments

c: Mr. Joe Colvin

Industry's Proposed Realistic Schedule for High Quality PRA Standards

On March 12, the NRC presented a preliminary schedule for the completion of various (PRA) standards and associated peer review guidance to the industry. In the meeting, the NRC stated that the schedule was very ambitious, with a proposed minimum duration. The industry believes that the NRC's proposed schedule does not adequately address the lessons learned from past standards development and implementation efforts, the current state of PRA methods with respect to the technical requirements of the PRA standard, and the available resources to support such a schedule.

As discussed in this letter, there are significant lessons learned from the past efforts that should be considered in defining the path forward on the refinement of existing PRA standards and development and endorsement of additional PRA standards:

- Industry believes that the scope addressed in the existing ASME/ANS PRA standard and endorsed in Regulatory Guide 1.200, Rev. 2 is sufficient to support the vast majority of applications being pursued by licensees. Since Regulatory Guide 1.200 applies to voluntary applications, there is no driving force to rapidly issue and endorse standards addressing additional PRA scope.
- Industry's experience in implementing the fire PRA requirements of the existing ASME/ANS PRA standard have uncovered many fire PRA methods refinements that are necessary to create a fire PRA that is usable for routine risk-informed decision-making. The recent EPRI pilot of the seismic portion of the ASME/ANS PRA standard has confirmed the importance of a detailed pilot, identifying both clarifications to the standard and needed methods improvements. The overall schedule for the launch of any new standards must account for the refinement of the standard requirements and the supporting technical methods.
- Even the internal events, at-power PRA standard went through several revisions until it became a usable tool. In fact, the major revision of the internal events, at-power PRA standard that occurred in ASME RA-Sb-2005 took 30 months from the pilot to publishing, despite the fact that there was a high level of experience with internal events PRAs. This is not surprising since all standards' activities are supported by volunteers.
- The additional PRA standards being developed all have extensive interfaces with the existing ASME/ANS PRA standard that need to be piloted. As we have seen with the on-going fire PRAs, failure to fully pilot the technical methods and standards leads to an unstable, unpredictable process. This is even more important for the low power/shutdown (LPSD), Level 2, and Level 3 PRA standards, where the scope and level of interaction with the requirements of the existing ASME/ANS PRA standard are substantially more complex. Furthermore, the industry and NRC have very little experience in using LPSD, Level 2, and Level 3 PRAs in regulatory decision-making.

- The NRC is just completing a state-of-the-art study on the consequences of reactor accidents. According to the public presentations made by the NRC staff, the SOARCA study has developed many improvements to the technical methods used in Level 2 and Level 3 PRAs. More importantly, these presentations indicate that the SOARCA results and insights are very different than previous NRC reference studies, such as NUREG-1150. Although SOARCA is not a Level 2 or Level 3 PRA, given the significance of these findings, it seems appropriate to document the technical methods, pilot those methods in a reference Level 2/Level 3 PRA, and address those improved methods in the supporting requirements of the standards before endorsement.
- The NRC has recently publicly discussed an update of the landmark NUREG-1150 study. Such an effort would be timely in light of these developing standards. The industry supports the NRC in this endeavor, as such a study could serve as an integrated pilot of the existing and new PRA standards for a spectrum of reactor and containment designs. Such an effort would provide an opportunity to establish a reference study that documents current methods and standard requirements and would be of benefit to both the NRC and the industry.
- The NRC's proposed plan presented at the March 12 meeting does not result in a comprehensive framework of standards. The requirements for fire PRA during LPSD conditions are not included. This would leave licensees in an awkward position of having a means to address many, but not all, risk contributors. It seems prudent to complete standards for the entire set of risk contributors as part of the next revision of Regulatory Guide 1.200. The LPSD fire PRA requirements were not promulgated by ANS because the writers felt that there was a need for more data and technical methods development before the technical requirements could be established. The industry agrees that those technical methods and data are needed before such a standard could be written. Consequently, we have added the development and piloting in the attached schedule.
- As these individual standards are piloted and completed, there is a fairly substantial technical effort to ensure that the technical requirements of the standards are properly coordinated/integrated.
- As mentioned above, the industry does not foresee a need for these additional standards. However, if they are going to be endorsed, then a regulatory pilot is needed, as was done with the original at-power Level 1 PRA requirements in Revision 0 of Regulatory Guide 1.200.

Industry provides a proposed draft plan and schedule that addresses these and other considerations. The essential elements of this plan are:

- Completion of draft standards
- Identification of gaps in technical methods supporting each standard

- An integrated pilot of the methods and standards in a base PRA model for, representative set of plants and plant operating states
- Refinement of methods and standards, based on the plant base model pilots
- Performance of a regulatory application employing the revised methods and standards
- Refinement of methods and standards, based on the regulatory application
- Issuance of the final standards and Revision 3 of Regulatory Guide 1.200

Figure 1

Fire PRA Schedule

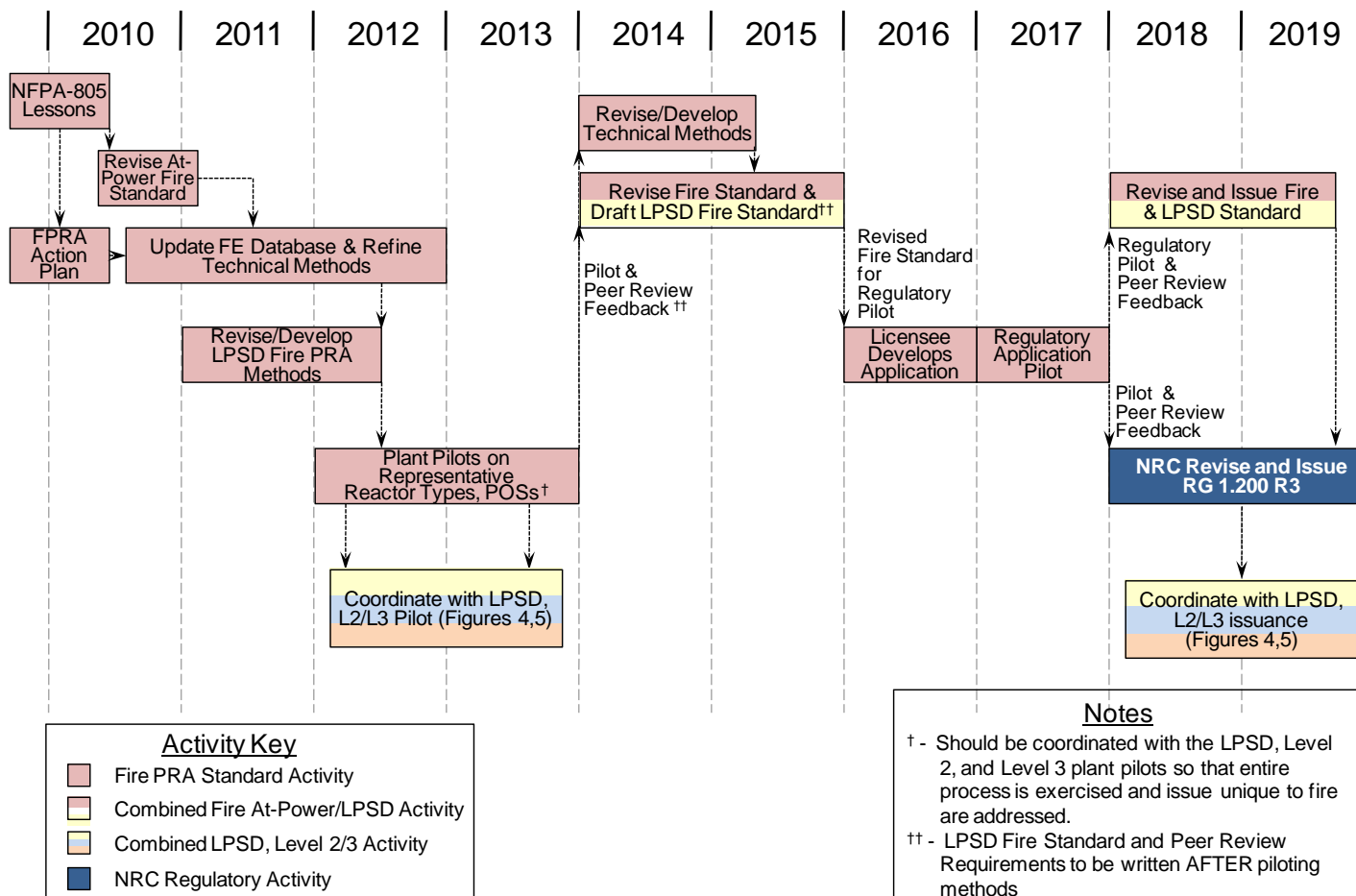


Figure 2

Seismic PRA Schedule

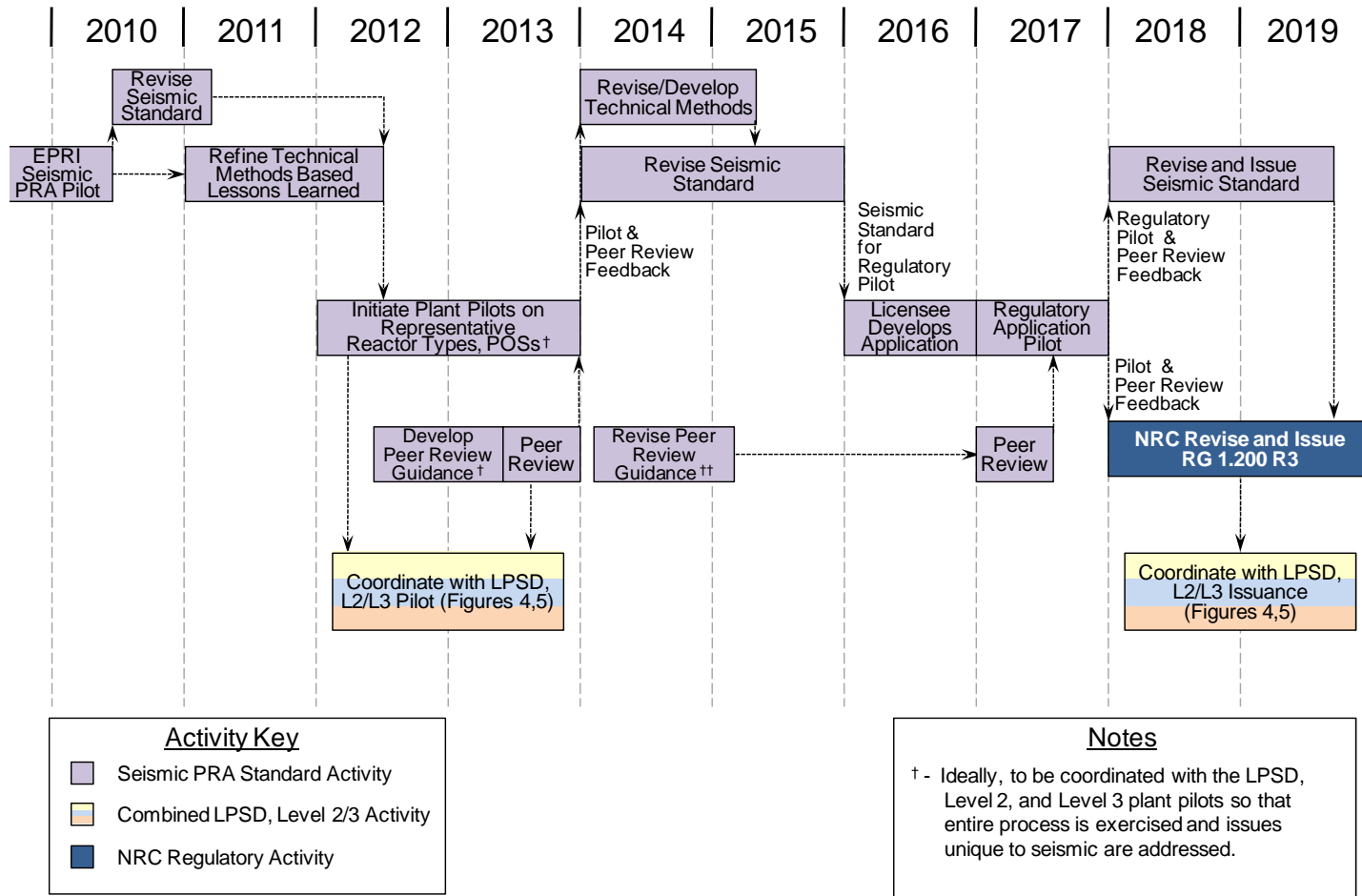


Figure 3

Other Hazards PRA Schedule

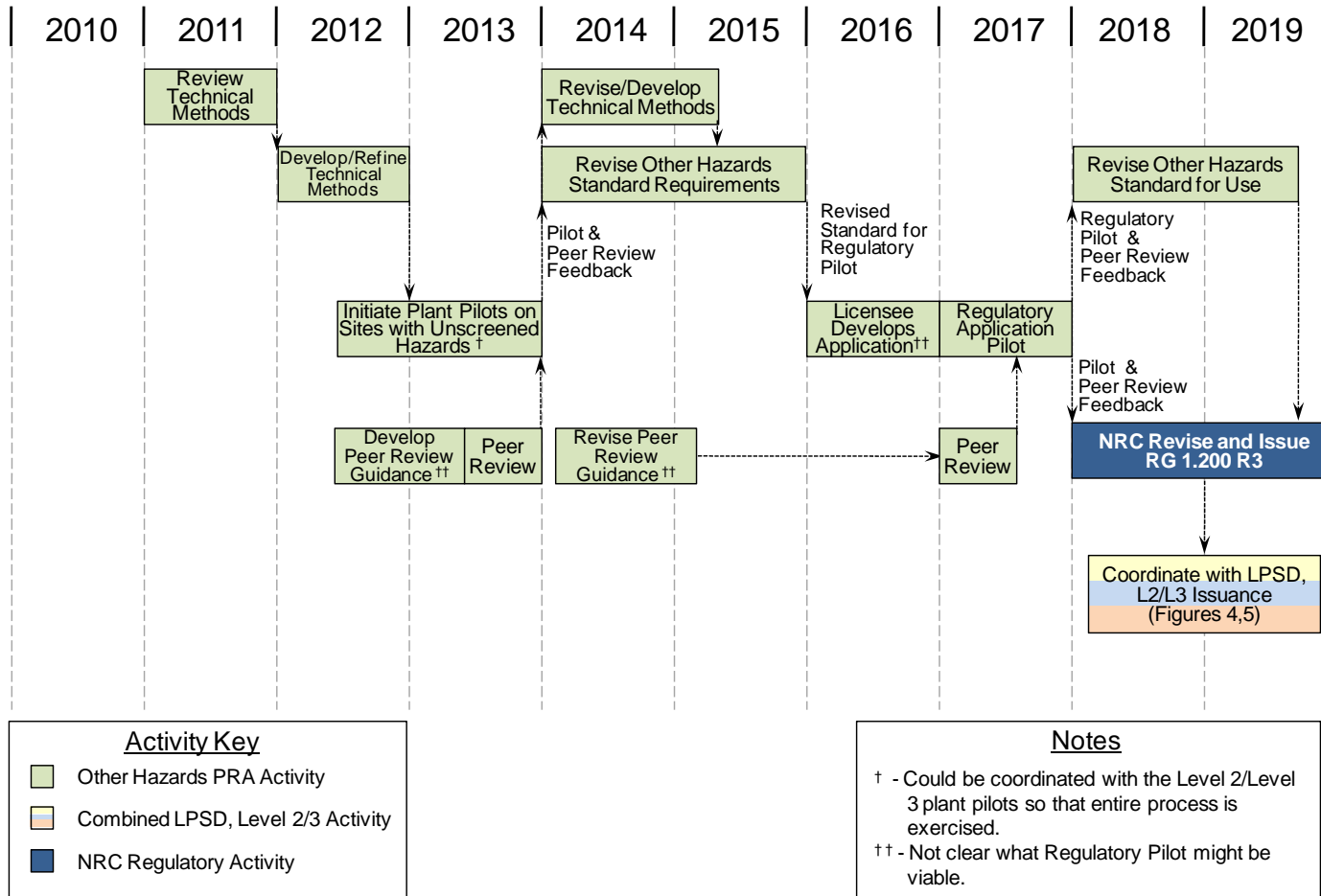


Figure 4

LPSD PRA Schedule

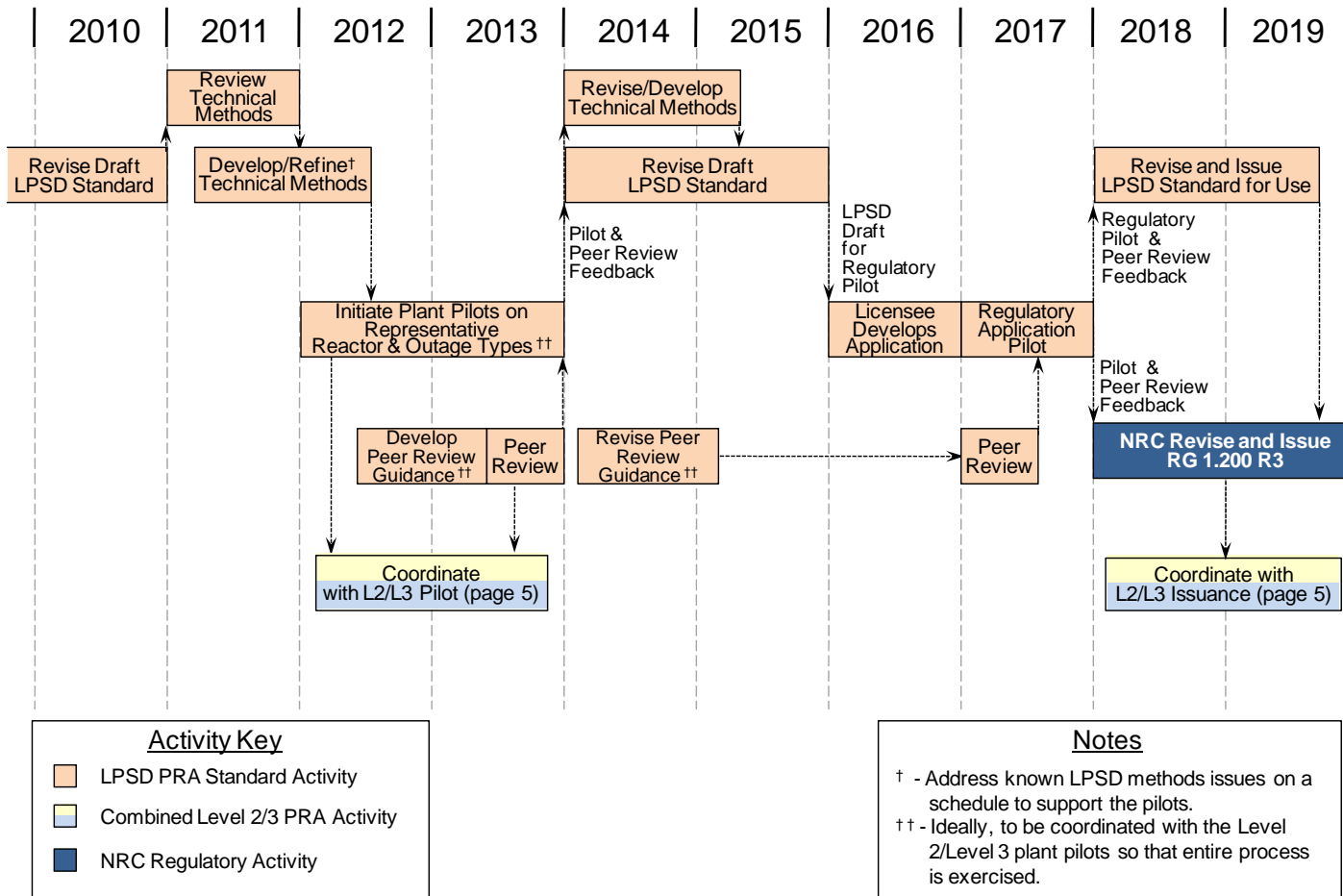
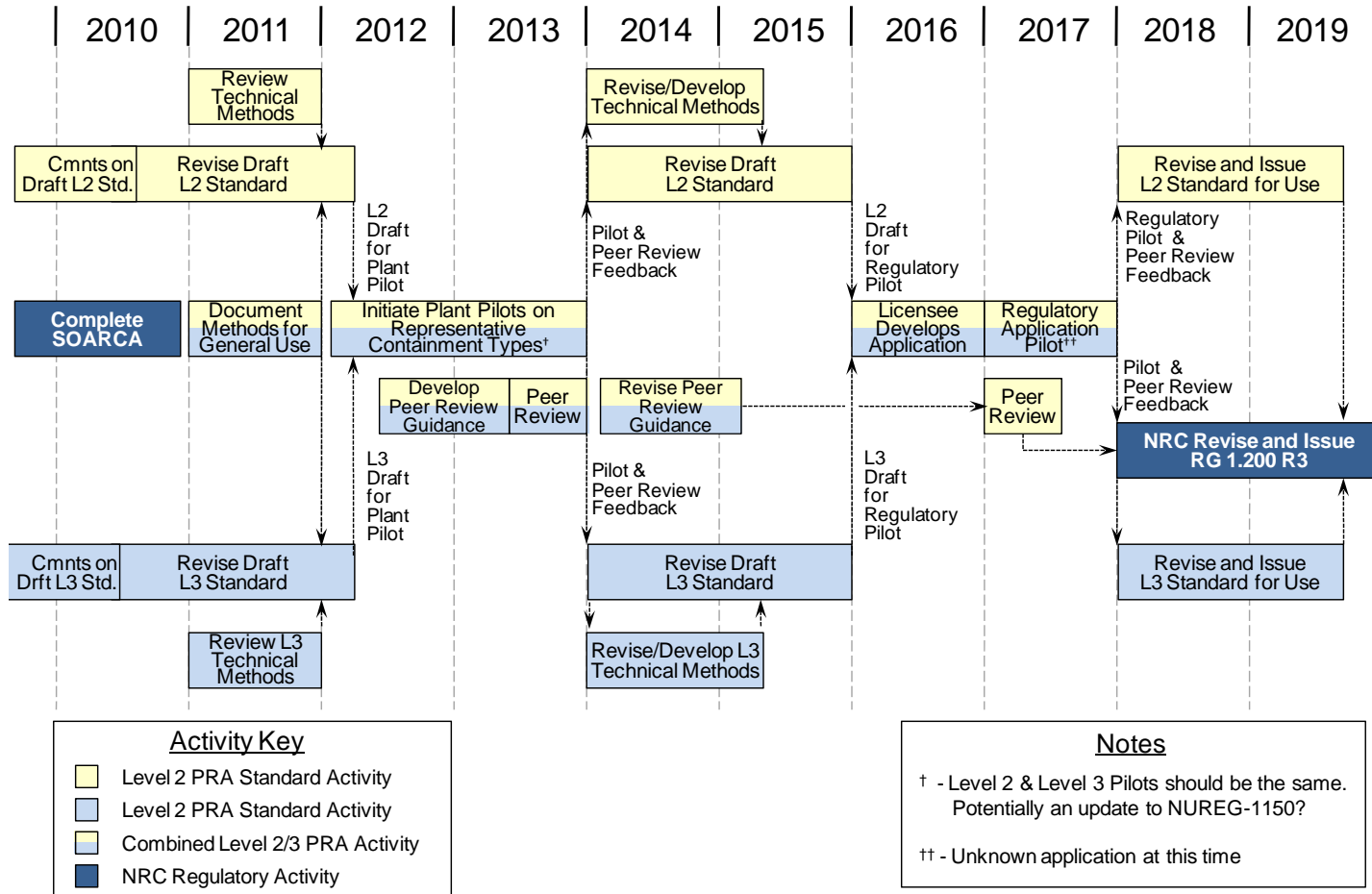


Figure 5

Level 2 & 3 PRA Schedule



		Obstacles to Completing Usable, Endorsed Standard	
Scope		Examples of Technical Methods Gaps	Process Obstacles
LPSD	Internal Events	<ul style="list-style-type: none"> • Human reliability is a dominant contributor, but no consensus methods exist. • The recent draft Standard contains requirements for which there are no published methods. • There is no recent generic data for POS-specific initiating events required by the current draft Standard. • There is no generic data source for POS-specific equipment unreliability/unavailability data, as required by the draft Standard. 	<ul style="list-style-type: none"> • The industry is not pursuing any regulatory applications subject to RG 1.200 that would require a LPSD PRA. Therefore, there is no end-user need at this time. • The scope of the current draft Standard excludes internal fires due to lack of available methods. Issuance of a partial Standard does not seem beneficial and further demonstrates the lack of need for such a Standard. • There are no publicly available industry reference studies. • The only NRC reference studies (NUREG/CR-4133, -4134) have a very limited scope, are primarily simplistic, screening studies that would not meet the current state of PRA practice, and are based on outdated outage management practices and experience. • The external hazards requirements in the at-power PRA Standard have not been sufficiently exercised. In fact, the few applications that have been performed have identified many needed enhancements. Extending these requirements to LPSD should only occur when the at-power requirements are clear. • There are only limited LPSD analyses for new reactors. Like NRC reference studies, they are very limited in scope and level of detail. • A systematic assessment of technical gaps for current and new reactors is needed. • Methods, suitable to meet the risk-informed decision-making needs, need to be developed. • Sufficient pilots must be undertaken to address the requirements for representative plants and conditions. • Methods and Standard requirements need to be updated based on the insights from the pilots. • A pilot regulatory application needs to be undertaken, as was done with RG 1.200, Rev. 0.
	Internal Floods	<ul style="list-style-type: none"> • There is no generic data source on the likelihood of flooding events specific to non-power conditions. This is particularly true with respect to maintenance-induced floods. • There is no reference method for addressing the flood propagation in the diverse plant configurations that exist across POSs/outages. 	
	Internal Fires	<ul style="list-style-type: none"> • The Standard does not address internal fires • There are no published methods and data sources to address LPSD fire. 	
	Other Hazards	<ul style="list-style-type: none"> • The methods for external events PRA have not been widely applied, even for at-power conditions, much less LPSD. • The methods for seismic LPSD are largely untested. • The seismic response of key structures would be expected to be different during certain outage conditions, e.g., cavity flooded. This has not been addressed in past reference studies and would require significant investment. 	

		Obstacles to Completing Usable, Endorsed Standard	
Scope		Examples of Technical Methods Gaps	Process Obstacles
Level 2	At-Power	<ul style="list-style-type: none"> The NRC-sponsored SOARCA project provides significant new insights into the realistic Level 2 PRA response of plants at-power. This report has not been publicly released. Given that it changes the state-of-the-art and, more importantly, produces quite different insights from past Level 2 PRAs, it seems prudent to wait on the Level 2 PRA Standard so that this can be addressed. The PRA Policy Statement encourages the consideration of state-of-the-art methods. 	<ul style="list-style-type: none"> See LPSD. For current reactors, there is no regulatory application subject to RG 1.200 that requires a Level 2 PRA. For new reactors, there is no definition of the risk metrics to be used in regulatory applications. The current draft Standard requires significant revision in order to be ready for piloting.
	LPSD	<ul style="list-style-type: none"> SOARCA did not appear to address outage conditions directly, but the results and insights should be considered in the LPSD Level 2 PRA methods. 	
Level 3	At-Power	<ul style="list-style-type: none"> See comment on SOARCA under Level 2 at-power (above). 	<ul style="list-style-type: none"> See LPSD. There is no regulatory application subject to RG 1.200 that requires a Level 3 PRA. The current draft Standard requires significant revision in order to be ready for piloting.
	LPSD	<ul style="list-style-type: none"> See comment on SOARCA under Level 2 LPSD (above). 	

**American Nuclear Society
N16, NUCLEAR CRITICALITY SAFETY
BALANCE OF INTEREST BY CATEGORY
2010**

Vendors (3)

Calvin D. Manning, AREVA-NP
W. Randy Shackelford, Nuclear Fuel Services, Inc.
Larry L. Wetzel, Babcock & Wilcox Nuclear Operations Group

Consultants (2)

Raymond L. Reed, URS Safety Management Solutions, LLC
Richard G. Taylor, INM Nuclear Safety Services

Government Agencies (3)

Thomas Marenchin, U.S. Nuclear Regulatory Commission
Burton Rothleder, U.S. Department of Energy
Robert E. Wilson, U.S. Department of Energy

National Laboratories (2 members w/1 vote)

*R. Michael Westfall, Oak Ridge National Lab.
*Davis A. Reed, Oak Ridge National Lab.†

Universities (2)

Robert D. Busch, University of New Mexico
Ronald E. Pevey, University of Tennessee

Societies (3)

Robert S. Eby, AIChE Representative (Employed by USEC)
Ronald Knief, Institute of Nuclear Materials Management (Employed by SNL)
Scott P. Murray, Health Physics Society (Employed by GE)

Individuals (2)

George H. Bidinger
Calvin M. Hopper

TOTAL = 17 members with 16 votes (*2 ORNL members share 1 vote)

†denotes subcommittee chair (Ex Officio member)

<u>Vote Summary</u>	
Vendors	3
Consultants	2
Government Agencies	3
National Laboratories	1
Universities	2
Societies	3
Individuals	2
TOTAL	16

**AMERICAN NUCLEAR SOCIETY
N17, RESEARCH REACTORS, REACTOR PHYSICS,
RADIATION SHIELDING & COMPUTATIONAL METHODS
BALANCE OF INTEREST BY CATEGORY
2010**

Owners (1)

Ray Tsukimura, Aerotest Operations, Inc.

Vendors (2)

Stanwood Anderson, Westinghouse
Anthony Veca, GA Technologies, Inc.

Consultants (1)

Charles Rombough, CTR Technical Services, Inc.

Government Agencies (5 members w/3votes)

Matthew A. Hutmaker, Jr., U.S. Department of Energy
Patrick Madden / Alexander Adams, U. S. Nuclear Regulatory Commission
*Tawfik Raby, National Institute of Standards & Technology
 *D. Sean O'Kelly, National Institute of Standards & Technology†
 *Seymour Weiss, National Institute of Standards & Technology

National Laboratories (3)

Dimitrios Cokinos, Brookhaven National Lab.†
Theodore Schmidt, Sandia National Lab.†
Andrew Smetana, Savannah River National Lab.†

Universities (4)

Nolan Hertel, Georgia Institute of Technology
Chris Heysel, McMaster University
Andrew Kadak, Massachusetts Institute of Technology
Ronald Pevey, University of Tennessee - Knoxville

Societies (4)

William H. Bell, AIChE (Employed by South Carolina Electric & Gas Co.)
Michael L. Corradini, NCRP (Employed by University of Wisconsin-Madison)
Richard Brey, HPS (Employed by Idaho State University)
James Miller, IEEE (GAMMA-METRICS) (Employed by James F. Miller Consulting Services)

Individuals (6)

Robert E. Carter
Brian K. Grimes
William C. Hopkins†
Laurence Kopp
Jack Olhoeft
Abraham Weitzberg

TOTAL = 26 members with 24 votes (*3 NIST members share 1 vote)

† denotes subcommittee chair (Ex Officio member)

Vote Summary:

Owners	1
Vendors	2
Consultants	1
Government Agencies	3
National Laboratories	3
Universities	4
Societies	4
Individuals	6
TOTAL	24

**AMERICAN NUCLEAR SOCIETY
RISK INFORMED STANDARDS CONSENSUS COMMITTEE (RISC)
BALANCE INTEREST BY CATEGORY
2010**

Owners (5)

Biff Bradley, Nuclear Energy Institute
John P. Gaertner, Electric Power Research Institute
Kenneth Kiper, FPL Energy Company
Greg Krueger, Exelon Nuclear
Daniel W. (Bill) Stillwell, South Texas Project Nuclear Operating Company

Vendors (4 members w/3 votes)

*Frederick Emerson, General Electric
*Dennis Henneke, General Electric
David Finnicum, Westinghouse (Combustion Engineering)
Stanley Levinson, AREVA-NP

Consultants (4)

Paul Amico, SAIC
Rick A. Hill, ERIN Engineering and Research, Inc.
Gene Hughes, ETRANCO
Donald Wakefield, ABS Consulting

Government Agencies (2)

Richard Black, U.S. DOE
Mary Drouin, U.S. NRC

National Laboratories (3)

Robert Bari, Brookhaven National Laboratory
Robert J. Budnitz, Lawrence Berkeley National Laboratory
Allen Camp, Los Alamos National Laboratory

Individual (2)

M. K. (Ravi) Ravindra
Jean Savy

TOTAL = 20 members with 19 votes (*2 GE members share 1 vote)

Vote Summary:

Owners	5
Vendors	3
Consultants	4
Government Agencies	2
National Laboratories	3
Individuals	2
TOTAL	19

Revised 4/8/2010

**American Nuclear Society
Nuclear Facilities Standards Committee - NFSC
Balance of Interest by Category
2010**

Owners (6)

William Bell, South Carolina Electric & Gas Company
Charles Brown, Southern Nuclear Operating Company†
Richard Hall, Exelon Generation Company
Peter Hastings, Duke Energy (NuStart Liaison)
R. Michael Ruby, Constellation Energy
Michael Wright, Entergy Nuclear South

Vendors (3 votes)

Robert McFetridge, Westinghouse Electric Company (existing reactors)
Timothy Meneely, Westinghouse Electric Company (new reactors)
Dennis Newton, AREVA-NP†

Architect-Engineers (6 members w/3 votes)

*Jeffery Brault, Shaw MOX Project†
 *Kevin Bryson, Shaw Environmental Inc.†
 *Carl Mazzola, Shaw Environmental & Infrastructure, Inc.
 *Steven Stamm, Shaw Nuclear Services
James Saldarini, Bechtel Power Corporation
J. Andrew Wehrenberg, Southern Nuclear Operating Company†

Consultants (4)

James August, CORE, Inc.†
Donald Eggett, Automated Engineering Services Corp.
Richard Hill, ERIN Engineering and Research, Inc.
Evan Lloyd, Exitech Corporation†

Government Agencies (2)

C. E. (Gene) Carpenter, U.S. Nuclear Regulatory Commission
Pranab Guha, U.S. Department of Energy
Larry Zull, Defense Nuclear Facilities Safety Board

National Laboratories (2)

Sheila Lott, Los Alamos National Laboratory
Donald Spellman, Oak Ridge National Laboratory (NFSC Liaison to IEEE NPEC)†

Societies (1)

Charles Moseley, ASME NQA Liaison

Individuals(5)

Timothy Dennis†
Richard Englehart
N. Prasad Kadambi
William Reuland
John Stevenson

TOTAL = 30 members with 27committee votes (*4 Shaw Group members share 1 vote)

†denotes subcommittee chair (Ex Officio member)

Vote Summary:

Owners	6
Vendors	3
Architect-Engineers	3
Consultants	4
Government Agencies	3
National Laboratories	2
Societies	1
Individuals	5
TOTAL	27

Revised 4/26/2010

PROPOSED REPLACEMENT

(C.M. Hopper – 2010-05-14)

POLICY ON DEVELOPING RESPONSES TO INQUIRIES ABOUT STANDARDS REQUIREMENTS, RECOMMENDATIONS, AND PERMISSIONS

1. BACKGROUND

The Standards Committee shall make timely *responses* to *inquiries* about requirements, recommendations and/or permissive statements (i.e., “shall,” “should,” and “may,” respectively) in American National Standards that are developed and approved by ANS. ANS does not develop *Case Interpretations*.

2. DEFINITIONS

2.1 *Response*

A written *response* to an *inquiry* about the content of an American National Standard developed by ANS.

2.2 *Case Interpretation*

A statement concerning a requirement that falls within the scope of the original standard but supplements or modifies (or both) the requirements stated in the standard that is applicable to a specific design, operation, facility, or other unique situation only and is not intended for generic application.

2.3 *Inquiry*

A question about a specific ANS standard that relates to the generic requirements, recommendations, and/or permissive statement(s) in that standard.

2.4 *Not Relevant*

An *inquiry* about an ANS standard for which the standard does not, or should not, address the subject of the *inquiry*.

3. REQUIREMENTS FOR RESPONDING TO INQUIRIES

3.1 *Response*

The *response* should explain the requirement, recommendation, or permissive statement(s) in the standard and how it is intended to be applied generically (i.e., non-specifically) relative to the *inquiry*. The *response* shall not make any statement(s) that would modify (i.e., subtract or add to) a requirement as presented in the text of the standard.

4. PROCEDURE

4.1 *Tracking*

The Standards Administrator shall monitor the evaluation of all inquiries and shall assist the ANS Standards Board (SB) Chair in ensuring that the requirements of this policy are properly implemented.

4.2 *Distribution*

The Standards Administrator shall send each *inquiry* to the ANS SB Chair, the responsible Consensus Committee Chair, and responsible Subcommittee Chair for their review to assure that the *inquiry* is

relevant to the identified standard and does not qualify as a *Case Interpretation*. If the *inquiry* is determined to be a *case interpretation, not relevant* to the specified standard, or that there is no responsible Consensus Committee to respond to the *inquiry* the SB Chair shall provide an explanation of such circumstances to the requestor within 30 days of the receipt of the *inquiry*. Upon the determination by the SB Chair, Consensus Committee Chair, and Subcommittee Chair that the *inquiry* is not a *case interpretation* and is relevant to the referenced standard the Subcommittee Chair shall manage the development of a *Response* to the *Inquiry* according to §4.3. The Vice-Chairs (i.e., Standards Board, responsible Consensus Committee, and the responsible Subcommittee) shall provide the Chair functions of this policy in the event a Chair is unavailable or incapacitated from performing those functions.

4.3 Development and Approval of an Inquiry Response

The *response* to an *inquiry* about a specifically dated standard shall be developed through the same consensus process as used for the development of the referenced specific standard. The only exception from that process is that voting periods for the development of the *response* may be less than the maximum voting periods permitted for developing and approving ANSI/ANS standards. Depending upon the availability of Working Group members, the following *inquiry response* development alternatives shall be considered in the following order of preference.

4.3.1 First Alternative

If a sufficient number of Working Group members who authored the specifically dated standard are available and can be reconstituted, then the Subcommittee Chair shall request that those Working Group members draft the *response* to the *inquiry*. The *response* shall meet the approval of the majority number of Working Group members who authored the specifically dated standard. Following the *response* approval by that majority, the draft *response* shall proceed through the same ANS standards consensus balloting process used for issuing ANS standards. If the *response* cannot meet the approval of that Working Group majority, then the development of the *response* shall be in accordance with §4.3.2.

4.3.2 Second Alternative

Failing the First Alternative, the Subcommittee Chair shall request that the present Working Group responsible for maintaining or revising the specifically dated or titled standard draft the *response* to the *inquiry*. Final approval of the *inquiry response* shall be in accordance with the same ANS standards consensus balloting process used for issuing ANS standards. If there is no Working Group maintaining the specifically dated or titled standard then the development of the *Response* shall be in accordance with §4.3.3.

4.3.3 Third Alternative

Failing the First and Second Alternatives, the Subcommittee Chair shall request that the responsible Subcommittee draft the *response* to the *inquiry*. Final approval of the *inquiry response* shall be in accordance with the same ANS standards consensus balloting process used for issuing ANS standards.

In the event that the responsible Subcommittee no longer exists, or is unable to draft a consensus response, the responsible Consensus Committee Chair shall provide a statement to that effect to the SB Chair for transmittal to the Requestor.

4.4 Response to Requestor

After all appropriate approvals have been obtained, the SB Chair shall send the *response* to the requestor and to the Standards Administrator. The response shall be sent to the requestor within six

months after receipt of the request by the ANS Standards Administrator, unless an alternate schedule is developed and understood by the requestor within three months of receipt.

4.5 **Publication**

Approved *inquiry responses* shall be published in *Nuclear News* within two months after the reply was sent to the requestor.

PROPOSED Revision
to
American Nuclear Society
Standards Committee
Rules and Procedures

February 12, 2004

JFM, 7/7/05

JFM, 1/31/06

NPK, 5/24/09

Reaccredited by ANSI on November 9, 2009

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5.8 Inquiries (i.e., requests, and/or questions) about American National Standards developed by the Standards Committee shall be submitted to the Standards Administrator. The Standards Administrator shall send each Inquiry to the ANS Standards Board (SB) Chair, the responsible Consensus Committee Chair, and the responsible Subcommittee Chair for their review and concurrence to assure that the inquiry is relevant to the identified standard and does not qualify as a *Case Interpretation*.

If the Inquiry is determined to be a *case interpretation* or *not relevant* to the specified standard, the SB Chair shall respond to the requestor within 30 days of the receipt of the Inquiry. Upon the determination by the SB Chair, Consensus Committee Chair, and Subcommittee Chair that the Inquiry is not a *case interpretation* and is relevant to the referenced standard, the Subcommittee Chair, if one still exists, shall manage the development of a response to the Inquiry according to the SB POLICY ON DEVELOPING RESPONSES TO INQUIRIES ABOUT STANDARDS REQUIREMENTS, RECOMMENDATIONS, AND PERMISSIONS. Because a response to the requestor can improve a requestor's understanding of one or more requirements, recommendations, or permissions in the standard, the response shall be reviewed for technical content by a sufficient number of the appropriate Working Group, Subcommittee and balloted by the responsible Consensus Committee in accordance with Article 5.7. The SB Chair shall provide the response to the requestor of the inquiry within six months. Each Response shall be published in Nuclear News within two months after the reply was sent to the requestor.

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CMH, 5/14/10

PROPOSED REPLACEMENT

(C.M. Hopper, ~~2010-05-14~~)

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POLICY ON DEVELOPING RESPONSES TO INQUIRIES ABOUT STANDARDS REQUIREMENTS, RECOMMENDATIONS, AND PERMISSIONS

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1. BACKGROUND

The Standards Committee shall make timely *responses to inquiries* about requirements, recommendations and/or permissive statements (*i.e., "shall," "should," and "may," respectively*) in American National Standards *that are* developed *and approved* by ANS. ANS does not develop *Case Interpretations*.

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2. DEFINITIONS

2.1 Response

A written *response* to an *inquiry* about the content of an American National Standard developed by ANS.

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2.2 Case Interpretation

A statement concerning a requirement that falls within the scope of the original standard but supplements or modifies (or both) the requirements stated in the standard *that* is applicable to a specific design, operation, facility, or other unique situation only and is *not* intended for generic application.

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2.3 Inquiry

A question about a specific ANS standard that relates to the generic requirements, recommendations, and/or permissive statement(s) in that standard.

2.4 Not Relevant

An inquiry about an ANS standard for which the standard does not, or should not, address the subject of the inquiry.

3. REQUIREMENTS FOR RESPONDING TO INQUIRIES

3.1 Response

The *response* should explain the requirement, recommendation, or permissive statement(s) in the standard and how it is intended to be applied generically (*i.e., non-specifically*) relative to the *inquiry*.

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The *response* shall not make any statement(s) that would modify (*i.e., subtract or add to*) a requirement as presented in *the text of* the standard.

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4. PROCEDURE

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4.1 Tracking

The Standards Administrator shall monitor the evaluation of all inquiries and shall assist the *ANS Standards Board (SB)* Chair in ensuring that the requirements of this policy are properly implemented.

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4.2 Distribution

The Standards Administrator shall send each *inquiry* to the ANS *SB* Chair, the responsible Consensus Committee Chair, and responsible Subcommittee Chair for their review to assure that the *inquiry* is

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relevant to the identified standard and does not qualify as a *Case Interpretation*. If the *inquiry* is determined to be a *case interpretation*, *not relevant* to the specified standard, *or that there is no responsible Consensus Committee to respond to the inquiry* the SB Chair shall *provide an explanation of such circumstances* to the requestor within 30 days of the receipt of the *inquiry*. Upon the determination by the SB Chair, Consensus Committee Chair, and Subcommittee Chair that the *inquiry* is not a *case interpretation* and is relevant to the referenced standard the Subcommittee Chair shall manage the development of a *Response* to the *Inquiry* according to §4.3. *The Vice-Chairs (i.e., Standards Board, responsible Consensus Committee, and the responsible Subcommittee) shall provide the Chair functions of this policy in the event a Chair is unavailable or incapacitated from performing those functions.*

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4.3 Development and Approval of an Inquiry Response

The *response* to an *inquiry* about a specifically dated standard shall be developed through the same consensus process as used for the development of the referenced specific standard. *The only exception from that process is that voting periods for the development of the response may be less than the maximum voting periods permitted for developing and approving ANSI/ANS standards.* Depending upon the availability of Working Group members, the following *inquiry response* development alternatives shall be considered in the following order of preference.

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4.3.1 First Alternative

If *a sufficient* number of Working Group members who authored the specifically dated standard are available and can be reconstituted, then the Subcommittee Chair shall request that those Working Group members *draft the response to the inquiry*. The *response* shall meet the approval of the majority number of Working Group members who authored the specifically dated standard. Following the *response* approval by that majority, the *draft response* shall proceed through the same ANS standards consensus balloting process used for issuing ANS standards. *If the response cannot meet the approval of that Working Group majority, then the development of the response shall be in accordance with §4.3.2.*

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4.3.2 Second Alternative

Failing the First Alternative, the Subcommittee Chair shall request that the *present* Working Group responsible for maintaining or revising the specifically dated or titled standard *draft the response to the inquiry*. Final approval of the *inquiry response* shall be in accordance with the same ANS standards consensus balloting process used for issuing ANS standards. If there is no Working Group maintaining the specifically dated or titled standard then the development of the *Response* shall be in accordance with §4.3.3.

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4.3.3 Third Alternative

Failing the *First and Second Alternatives*, the Subcommittee Chair shall request that the responsible Subcommittee *draft the response to the inquiry*. Final approval of the *inquiry response* shall be in accordance with the same ANS standards consensus balloting process used for issuing ANS standards.

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In the event that the responsible Subcommittee no longer exists, or is unable to *draft* a consensus *response*, the *responsible* Consensus Committee Chair shall provide a statement to that effect to the SB Chair for transmittal to the Requestor.

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4.4 Response to Requestor

After all appropriate approvals have been obtained, the SB Chair shall send the *response* to the *requestor* and to the Standards Administrator. The *response* shall be sent to the requestor within six

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months after receipt of the request by the ANS Standards Administrator, unless an alternate schedule is developed and understood by the requestor within three months of receipt.

4.5 **Publication**

Approved inquiry responses shall be published in *Nuclear News* within two months after the reply was sent to the requestor.

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PROPOSED Revision

to
American Nuclear Society
Standards Committee
Rules and Procedures

February 12, 2004

JFM, 7/7/05

JFM, 1/31/06

Reaccredited by ANSI on February 8, 2006

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5.7 Inquiries (i.e., requests, and/or questions) about American National Standards developed by the Standards Committee shall be submitted to the Standards Administrator. The Standards Administrator shall send each Inquiry to the ANS Standards Board (SB) Chair, the responsible Consensus Committee Chair, and the responsible Subcommittee Chair for their review and concurrence to assure that the inquiry is relevant to the identified standard and does not qualify as a Case Interpretation.

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If the Inquiry is determined to be a case interpretation or not relevant to the specified standard, the SB Chair shall respond to the requestor within 30 days of the receipt of the Inquiry. Upon the determination by the SB Chair, Consensus Committee Chair, and Subcommittee Chair that the Inquiry is not a case interpretation and is relevant to the referenced standard, the Subcommittee Chair, if one still exists, shall manage the development of a response to the Inquiry according to the SB POLICY ON DEVELOPING RESPONSES TO INQUIRIES ABOUT STANDARDS REQUIREMENTS, RECOMMENDATIONS, AND PERMISSIONS. Because a response to the requestor can improve a requestor's understanding of one or more requirements, recommendations, or permissions in the standard, the response shall be reviewed for technical content by a sufficient number of the appropriate Working Group, Subcommittee and balloted by the responsible Consensus Committee in accordance with Article 5.4. The SB Chair shall provide the response to the requestor of the inquiry within six months. Each Response shall be published in Nuclear News, within two months after the reply was sent to the requestor.

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CMH, 5/14/10

ANS RESPONSE TO INQUIRIES ON STANDARDS

Several months ago, an inquiry was sent to ANS Standards Department by utility users of ANS-19.6.1, “Reload Startup Physics Tests for PWRs”. The users submitting the inquiry were asking for clarification on a specific step among those recommended during reload startups in one of their reactors. The inquiry was forwarded to the Working Group of ANS-19.6.1, with a request to provide a response to the inquiry.

Within a day or two, a response was prepared by the Working Group and forwarded to ANS. The response was a simple clarification, of the recommended step. It consisted basically of the rewording of the recommendation. The clarification was non-substantive. There was no new information supplied in the response and the response did not alter the meaning or content of the standard.

A recent review and reformulation of ANS Standards Rules states that before a response to an inquiry on standards by users is forwarded to the users making the request, it should be reviewed and signed off (1) by the Working Group, then (2) reviewed, approved and signed off by the members of the Subcommittee, then (3) reviewed, approved and signed off by the members of the Consensus Committee before it is finally submitted to (4) the ANS Standards Board for approval. According to the new rules, only then can the response be forwarded to the users. It is obvious that such a lengthy procedure involves a very long time to reach the users making the inquiry.

We believe this is an unnecessary procedure for responding to technical inquiries as it involves an inordinate amount of time, without adding anything new to the standard. Furthermore, the answer being provided by the WG, the only group of experts, on a specific topic, who developed and now maintain the standard, is not going to alter the experts’ response by no matter how many organizations would be reviewing and voting on it. The only thing for sure, this lengthy and cumbersome review will accomplish will be an extremely long delay that will cause an unwanted setback in the startup plans of the reactor.

Correct and accurate experts’ responses must be provided to the users in an efficient and timely manner, free of any red tapes or unnecessary impediments forced on the startup schedules of utilities.

Dimitrios Cokinos, Chiarman
ANS-19, Reactor Physics Standards

PINS in Development (2)

- ANS-8.20, “Nuclear Criticality Safety Training” (revision of ANSI/ANS-8.20-1991 (R2005))
- 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 (2)

- ANS-8.25, “Development of Nuclear Criticality Safety Related Postings” (new standard)
- ANS-8.28, NCS & NDA Needs/Applications Standard – title to be defined (new standard)

Standards in Development – Approved PINS (7)

- 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 (R2002))
- 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-8.21, “Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors” (revision of ANSI/ANS-8.21-1995 (R2001))

Clarifications (1)

Inquiry received 3/2/2010 on ANSI/ANS-8.3-1997 (R2003), “Criticality Accident Alarm System”. Currently OPEN.

Delinquent Standards (6)

- ANSI/ANS-8.3-1997 (R2003), “Criticality Accident Alarm System”
- ANSI/ANS-8.6-1983 (R2001), “Safety in Conducting Subcritical Neutron-Multiplication Measurements in Situ”
- ANSI/ANS-8.10-1983 (R2005), “Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement”
- ANSI/ANS-8.12-1987 (R2002), Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors”
- ANSI/ANS-8.14-2004, “Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors”
- ANSI/ANS-8.21-1995 (R2001), “Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors”

Other Issues

- Progress of long-outstanding PINS & standard development of a posting standard.

N17 Progress Report June 2010

Standards Published (1)

- ANSI/ANS-15.11-2009, “Radiation Protection at Research Reactors”

Approved by ANSI (2)

- ANSI/ANS-10.2-1999 (R2009), “Quality Control for Plate-Type Uranium-Aluminum Fuel Elements” (reaffirmation)
- ANSI/ANS-14.1-2004 (R2009), “Operation of Fast Pulse Reactors” (reaffirmation)

Standards in Development – Approved PINS (14)

- ANS-5.1, “Decay Heat Power in Light Water Reactors”
- ANS-6.1.2, “Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection Calculations for Nuclear Power Plants”
- ANS-10.7, “Non-Real Time, High Integrity Software for the Nuclear Industry”
- ANS-15.2, “Quality Control for Plate-Type Uranium-Aluminum Fuel Elements”
- ANS-15.8, “Quality Assurance Program Requirements for Research Reactors”
- ANS-15.17, “Fire Protection Program Criteria for Research Reactors”
- ANS-15.19, “Shipment and Receipt of Special Nuclear Material (SNM) by Research Reactor”
- ANS-15.21, “Format and Content for Safety Analysis Reports for Research Reactors”
- ANS-19.1, “Nuclear Data Sets for Reactor Design Calculations”
- ANS-19.3, “Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors”
- ANS-19.6.1, “Reload Startup Physics Tests for Pressurized Water Reactors”
- ANS-19.9, “Delayed Neutron Parameters for Light Water Reactors”
- ANS-19.11, “Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors”
- ANS-19.12, “Nuclear Data for the Production of Radioisotope”

Clarifications (1)

Inquiry received 4/8/2010 on ANSI/ANS-19.6.1-2005, “Reload Startup Physics Tests for Pressurized Water Reactors.” Status: Issued to inquirer 5/21/2010. Published in May/June 2010 *Nuclear Standards News*. Submitted for publication in July 2010 *Nuclear News*.

Delinquent Standards (1)

- ANSI/ANS-5.1-2005, “Decay Heat Power in Light Water Reactors”
- ANSI/ANS-19.1-2002, “Nuclear Data Sets for Reactor Design Calculations”
- ANSI/ANS-19.4-1976 (R2000), “A Guide for Acquisition and Documentation of Reference Power Reactor Physics Measurements for Nuclear Analysis Verification”
- ANSI/ANS-19.11-1997 (R2002), “Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Water Moderated Power Reactors”

Withdrawn Standard (1)

- ANSI/ANS-15.17-1981 (R2000), “Fire Protection Program Criteria for Research Reactors” (Withdrawn 5/3/2010 as revision not completed in time)

NFSC Chairman's Report
ANS June 2010 Meeting • San Diego, California

I. Published Standard (1)

	Status	SC
ANSI/ANS-40.37-2009 , Mobile Low-Level Radioactive Waste Processing Systems (reinvigoration of historic standard)	published	ANS-27

II. Standard approved by NFSC (1)

	Status	SC
ANSI/ANS-2.26-2004 (R2010) , Categorization of Nuclear Facility Structures, Systems, and Components For Seismic Design (reaffirmation)	approved by ANSI 5/27/2010	ANS-22

III. Standards and draft standards at ballot or comment resolution (6)

	Status	SC
ANS-2.17 , Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Production Facilities (reinvigoration of historic standard)	At ballot with due date of 7/7/2010.	ANS-25
ANS-2.21 , Criteria for Assessing Atmospheric Effects On the Ultimate Heat Sink (new standard)	resolving comments/revising draft	ANS-25
ANS-41.5 , Verification and Validation of Radiological Data for Use in Waste Management and Environmental Remediation (new standard)	resolving comments/revising draft	ANS-24
ANS-5.4 , Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel (reinvigoration of historic standard)	resolving comments/revising draft	ANS-24
ANS-53.1 , Nuclear Safety Criteria for the Design of Modular Helium-Cooled Reactor Plants (new standard)	resolving comments/revising draft	ANS-28
ANS-58.14 , Safety and Pressure Integrity Classification Criteria for Light Water Reactors (reinvigoration of historic standard)	resolving comments/revising draft	ANS-22

IV. Standards in development -- Approved PINS (13)

	Status	SC
ANS-2.2 , Earthquake Instrumentation Criteria for Nuclear Power Plants (revision)	in development	ANS-25
ANS-2.3 , Determining Tornado and Other Extreme Wind Characteristics at Nuclear Facility Sites (new standard)	in development	ANS-25
ANS-2.9 , Evaluation of Ground Water Supply for Nuclear Facilities (reinvigoration of historic standard)	in development	ANS-25
ANS-2.15 , Criteria for Modeling and Calculating Atmospheric Dispersion of Routine Radiological Releases from Nuclear Facilities (new standard)	in development	ANS-24
ANS-2.16 , Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities (new standard)	in development	ANS-24
ANS-2.25 , Surveys of Terrestrial Ecology Needed to License Thermal Power Plants (reinvigoration of historic standard)	in development	ANS-25
ANS-2.30 , Assessing Capability for Surface Faulting at Nuclear Facilities (new standard)	in development	ANS-25
ANS-3.1 , Selection, Qualification, and Training of Personnel for Nuclear Power Plants (reinvigoration of historic standard)	in development	ANS-21
ANS-3.8.10 , Criteria for Modeling Real-time Accidental Release Consequences at Nuclear Facilities (new standard)	in development	ANS-24
ANS-18.1 , Radioactive Source Term for Normal Operation of Light Water Reactors (reinvigoration of historic standard)	in development	ANS-24
ANS-51.10 , Auxiliary Feedwater System for Pressurized Water Reactors (revision)	in development	ANS-22
ANS-56.8 , Containment System Leakage Testing Requirements	in development	ANS-21

NFSC Chairman's Report
ANS June 2010 Meeting • San Diego, California

(revision)		
ANS-58.8 , Time Response Design Criteria for Safety-Related Operator Actions (revision)	in development	ANS-22

V. PINS approved by NFSC (6)

	Status	SC
ANS-3.8.1 , Criteria for Radiological Emergency Response Functions and Organizations for Nuclear Facilities(reinvigoration of historic standard)	With SB for approval	ANS-26
ANS-3.8.2 , Criteria for Functional and Physical Characteristics of Radiological Emergency Response Facilities at Nuclear Facilities(reinvigoration of historic standard)	With SB for approval	ANS-26
ANS-3.8.3 , Criteria for Radiological Emergency Response Plans and Implementing Procedures and Maintaining Emergency Response Capability for Nuclear Facilities(reinvigoration of historic standard)	With SB for approval	ANS-26
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 of historic standard)	With SB for approval	ANS-26
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)	With SB for approval	ANS-26
ANS-54.1 , Nuclear Safety Criteria and Design Process for Liquid-Sodium-Cooled-Reactor Nuclear Power Plants (reinvigoration of historic standard)	With SB for approval	ANS-29

VI. PINS in approval with NFSC (2)

	Status	SC
ANS-2.31 , Standard for Estimating Extreme Precipitation at Nuclear Facility Sites (new standard)	resolving comments/revising PINS	ANS-25
ANS-58.16 , Safety Classification and Design Criteria for Non- Reactor Nuclear Facilities	resolving comments/revising PINS	ANS-22

VII. PINS in preparation (4)

	Status	SC
ANS-3.4 , Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants (reinvigoration of historic standard)	to be drafted by WG	ANS-21
ANS-40.21 , Siting, Construction, and Operation of Commercial Low Level Radioactive Waste Burial Grounds (new standard)	to be drafted by WG	ANS-25
ANS-40.35 , Volume Reduction of Low-Level Radioactive Waste or Mixed Waste (reinvigoration of historic standard)	to be drafted by WG	ANS-27
ANS-58.2 , Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture (reinvigoration of historic standard)	to be drafted by WG	ANS-24

VIII. Delinquent standards (8)

	Status	SC
ANS-2.2 , Earthquake Instrumentation Criteria for Nuclear Power Plants	revision in development	ANS-25
ANS-2.10 , Criteria for the Handling and Initial Evaluation of Records from Nuclear Power Plant Seismic Instrumentation	inactive working group	ANS-21
ANS-3.4 , Nuclear Power Plant Simulators for Use in Operator Training and Examination	revision in development	ANS-21
ANS-56.8 , Containment System Leakage Testing Requirements	revision in development	ANS-21

NFSC Chairman's Report
ANS June 2010 Meeting • San Diego, California

ANS-57.8 , Fuel Assembly Identification	inactive working group	ANS-27
ANS-58.6 , Criteria for Remote Shutdown for Light Water Reactors	inactive working group	ANS-21
ANS-58.11 , Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors	inactive working group	ANS-22
ANS-59.3 , Nuclear Safety Criteria for Control Air Systems	inactive working group	ANS-22

IX. Clarifications (4)

	Status	SC
ANSI/ANS-3.4 , Nuclear Power Plant Simulators for Use in Operator Training and Examination	inquiry received 8/13/09; currently resolving comments from subcommittee review	ANS-21
ANSI/ANS-3.5-2009 , Nuclear Power Plant Simulators for Use in Operator Training and Examination	Inquiry #1 received 10/13/09; response being drafted by WG	ANS-21
ANSI/ANS-3.5-2009 , Nuclear Power Plant Simulators for Use in Operator Training and Examination	Inquiry #2 received 11/13/09; response being drafted by WG	ANS-21
ANSI/ANS-57.5-1996 (R2006) , Light Water Reactors Fuel Assembly Mechanical Design and Evaluation	Inquiry received 2/17/10. Draft response approved and released to inquirer 5/21/2010.	ANS-27

Risk Informed Standards Committee (RISC) Progress Report June 2010

In RISC Ballot/Vote (or resolving comments)

ANS-58.22-20xx, "Low Power Shutdown PRA Methodology"

- Writing group is led by Don Wakefield, underway since 1999
- Reballot was issued due to substantive changes
- Reballot closed October 2008 with 674 committee comments and 116 public comments
- Comment responses and a revised draft were issued to RISC in November 2009
- Working group is resolving the remaining issues before issuing a revised draft for another ballot

Standards in Progress

ANS/ASME-58.24-20xx, "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
- Draft issued to RISC & ASME CNRM for preliminary review in January 2010
- Comments were provided to the working group for consideration in May 2010
- Waiting for NRC comments on the preliminary review
- Working group meeting is tentatively scheduled for mid-summer to resolve comments
- Ballot date to be determined

ANS/ASME-58.25-20xx, "Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications"

- Writing 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
- Bulk of NRC comments were provided to the working group in April 2010
- Working group meeting is scheduled June 15 & 16, 2010, during the ANS Meeting
- Ballot date to be determined

ANS RISC Merger with ASME CNRM

The RISC met on February 24, 2010, in Dallas, Texas, in a joint meeting with the ASME CNRM. The full day meeting provided both committees an opportunity to thoroughly review the draft procedures for merging the two consensus bodies into the proposed Joint Committee on Nuclear Risk Management (JCNRM). In April, a revised procedures document was circulated to the RISC and CNRM as well as to the ANS Standards Board and the ASME Board on Nuclear Codes and Standards for comment. The ASME bodies have said that they expect to vote on approval of this merger by September 2010.

RISC Meeting

The RISC will meet on Wednesday, June 16, 2010, during the ANS Annual Meeting. Members of the CNRM are invited, and it may be a joint meeting if quorums from both committees are present, which is expected.

Standards Inquiries and Delinquent Standards

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

Other Activities

- 1) The ASME CNRM is sponsoring the development of two additional PRA standards, one covering PRA methods for advanced non-LWR reactors, and the other covering PRA methods for advanced light-water reactors including LWRs in the design and construction stage. Members of the RISC Committee are involved as members of both ASME writing groups, and within the past year RISC has been involved in reviewing draft versions of both of these standards to assure coordination with the PRA standards that ANS-RISC oversees.
- 2) NRMCC -- ,The RISC Committee's leadership remains active within the "Nuclear Risk Management Coordinating Committee," an ad-hoc committee whose other active representatives come from ASME, DOE, NRC, and with less active participation IEEE and NASA. This committee meets 2 or 3 times annually for a day. It was founded in 2003 to help assure that coordination rather than conflict characterizes the interactions among these organizations in the area of PRA standards development and maintenance.

Consensus Standards in a Nuclear Industry Revival

Voluntary consensus standards have played an essential role in the accomplishments of US industry over the past century. We see consensus standards at work when we use a gas cylinder with high pressure fuel for the backyard grill, or when nuclear fuel is processed, transported and used safely by preventing nuclear criticality from occurring inadvertently. American Nuclear Society (ANS) standards specify the important requirements that must govern every action that is taken with nuclear fuel so that criticality conditions are closely controlled and monitored.

The ANS contemplates the prospect of a nuclear renaissance with the recognition that we must do everything possible to avoid the loss of public confidence that followed the construction of the plants currently providing 20% of US electricity, generated by safe nuclear energy. An important Department of Energy (DOE) study has found that a breakdown in the use of consensus standards was one of the factors that led to some plants being aborted during construction and other adverse events that fueled popular outrage. This is the right time for Congress to examine the structure and processes involved in voluntary consensus standards so that needed improvements can be pursued in this vital public-private partnership.

Consensus standards are developed by volunteers, who are sometimes supported by employers, but often work without compensation, just for the professional satisfaction of advancing the state-of-the-art in their chosen field of activity. As such, they represent an under-appreciated, but huge, national resource. In nuclear technology, the ANS is the premier technical society for bringing together all the diverse disciplines involved, with the Standards Committee of the ANS providing the standards development function. The ANS is a Standards Developing Organization (SDO) accredited by the American National Standards Institute (ANSI) for rigorously following strict rules and procedures on such matters as balance-of-interest in representation and consensus balloting. The ANS Standards Committee has about 1000 experts in every aspect of nuclear technology, motivated by professionalism and service, who give of themselves for standards in ways much more arduous than employers generally expect from employees. ANS standards frequently constitute the basis for developing international standards.

The existing structure for consensus standards has worked so well that Congress has codified their use in statute (The National Technology Transfer and Advancement Act, PL 104-113), and the Executive Branch has issued a circular (OMB A-119) to bring federal agencies under its oversight. However, experience in the nuclear field shows that the conceptual model for standards is not working optimally. If the US is to regain global leadership in nuclear technology, an ideal place to begin is by increasing the effectiveness and efficiency of consensus standards development and use. Examples of needed structural enhancements and increased resource allocations are:

- Strengthen forums such as the Nuclear Energy Standards Coordination Collaborative for federal agencies, industry, ANSI, and SDOs to work together.
- Modernize standards development and use so that information technology enables designers to locate and employ standards of appropriate pedigree.
- Find practical ways to help standards volunteers deploy communications technologies so experts who lose employer support can continue participation in standards committees.
- Improve the way regulators use approved standards for maximal public impact.

Staff Report June 2010

Standards Development

Project Initiation Notification System (PINS) forms were submitted to ANSI announcing initiation of revisions to ANSI/ANS-8.3-1997 (R2003), "Criticality Accident Alarm System," and ANSI/ANS-56.8-2002, "Containment System Leakage Testing Requirements." Year to date, three ballots have been administered for approval of new or revised standards and reaffirmations of current standards. The American National Standards Institute approved the reaffirmation of ANSI/ANS-2.26-2004 (R2010), "Categorization of Nuclear Facility Structures, Systems, and Components For Seismic Design." Both ANSI/ANS-15.11-2009, "Radiation Protection at Research Reactors," and ANSI/ANS-40.37-2009, "Mobile Low-Level Radioactive Waste Processing Systems," were published this year.

Grant Activities

A grant was awarded from the U.S. Nuclear Regulatory Commission for development of three new standards for probabilistic risk assessment (PRA) techniques in July of 2009. The primary purpose of this grant is to aid in the development of PRA standards that address low power and shutdown, accident progression and source term analysis (level 2 PRA), and consequence analysis (level 3 PRA). Since receiving the grant, all three working groups have completed drafts for committee preliminary review. The working groups are resolving comments and anticipate the release of the draft for formal committee ballot with concurrent public review before the end of 2010.

Standards Committee News

Two consensus committees and the Standards Board are scheduled to meet during the ANS Annual Meeting in San Diego, California, along with numerous working groups. The ANS Nuclear Facilities Standards Committee approved the reformation of a subcommittee to develop emergency planning and preparedness standards.

Several changes were made to key positions in the Standards Committee recently. Allen Camp stepped down as chair of the Risk Informed Standards Committee. His vice chair, Robert Budnitz, took over to complete the three-year term of office. Two long-term subcommittee chairs retired. Davis Reed took over for Thomas McLaughlin as chair of the ANS-8 Subcommittee, Fissionable Materials Outside Reactors. Sean O'Kelly took over for Wade Richards as chair of the ANS-15 Subcommittee, Operation of Research Reactors.

Standards Committee Coordination with Other Committees

The ANS Risk Informed Standards Committee continues to collaborate with the ASME Committee on Nuclear Risk Management on probabilistic risk assessment standards and looks to find ways to improve efficiency and responsiveness to the industry. Standards Committee members continue to support the Nuclear Risk Management Coordinating Committee and the Nuclear Energy Standards Coordination Collaborative on behalf of the ANS.

Clarifications

The Standards Committee continues to respond to inquiries on standards. Responses to inquiries on ANSI/ANS-19.6.1-2005, "Reload Startup Physics Tests for Pressurized Water Reactors," and ANSI/ANS-57.5-1996 (R2006), "Light Water Reactors Fuel Assembly Mechanical Design and Evaluation," were issued. All clarifications are published in *Nuclear News* and *Nuclear Standards News*. Additionally clarifications are publicly available under "Related Sections" in the ANS On-line Store under standards.

(<http://www.ans.org/standards/clarifications/>)

Information Center on Nuclear Standards

New interest has been shown in the Information Center of Nuclear Standards (ICONS). The program provides members a hard copy of all current ANS standards, *Nuclear News*, *ANS News*, *Nuclear Standards News*, and complimentary copies of draft standards upon request. With the availability of electronic standards by subscription through the Information Handling Services, membership has dropped in recent years. This year marks the first increase in ICONS membership in several years.

New On-Line Volunteer Database

Work on the on-line standards volunteer database has been put on hold.

Standards Department Audit

The American National Standards Institute (ANSI) conducted an audit of the ANS standards program on March 15 and 16, 2010. A final report has not been received from ANSI, but a preliminary report recognized a very well organized program. The final report will include findings and suggestions for improving the program.

Annual Activity Report

The 2009 "Standards Committee Report of Activities" has been completed and is available free of charge through the Standards Resource page of the ANS Web site

(<http://www.ans.org/standards/resources/downloads/docs/comactivitiesreport2009.pdf>). The report is a compilation of information from more than 120 working groups, 14 subcommittees, 4 consensus committees, and the Standards Board. Together these groups make up the Standards Committee. The report acknowledges the support of hundreds of volunteers.

ANSI Final Approval Report

Designation	Title	Final Approval Date
ANS- 1	Conduct of Critical Experiments	10/11/2007
ANS- 2 . 2	Earthquake Instrumentation Criteria for Nuclear Power Plants	11/21/2002
ANS- 2 . 10	Criteria for the Handling and Initial Evaluation of Records from Nuclear Power Plant Seismic Instrumentation	4/14/2003
ANS- 2 . 23	Nuclear Plant Response to an Earthquake	6/15/2009
ANS- 2 . 26	Categorization of Nuclear Facility Structures, Systems, and Components For Seismic Design	5/27/2010
ANS- 2 . 27	Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments	7/31/2008
ANS- 2 . 29	Probabilistic Seismic Hazard Analysis	7/31/2008
ANS- 3 . 2	Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants	7/31/2006
ANS- 3 . 4	Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants	7/23/2002
ANS- 3 . 5	Nuclear Power Plant Simulators for Use in Operator Training and Examination	9/4/2009
ANS- 3 . 11	Determining Meteorological Information at Nuclear Facilities	12/22/2005
ANS- 5 . 1	Decay Heat Power in Light Water Reactors	4/1/2005
ANS- 5 . 10	Airborne Release Fractions at Non-Reactor Nuclear Facilities	11/6/2006
ANS- 6 . 1 . 2	Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection Calculations for Nuclear Power Plants	2/23/2009
ANS- 6 . 3 . 1	Program for Testing Radiation Shields in Light Water Reactors (LWR)	4/20/2007
ANS- 6 . 4	Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants	9/29/2006
ANS- 6 . 4 . 2	Specification for Radiation Shielding Materials	9/28/2006
ANS- 6 . 6 . 1	Calculation and Measurement of Direct and Scattered Gamma Radiation from LWR Nuclear Power Plants	3/5/2007
ANS- 8 . 1	Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	5/16/2007
ANS- 8 . 3	Criticality Accident Alarm System	6/12/2003
ANS- 8 . 5	Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material	5/14/2007
ANS- 8 . 6	Safety in Conducting Subcritical Neutron-Multiplication Measurements in Situ	7/23/2001
ANS- 8 . 7	Nuclear Criticality Safety in the Storage of Fissile Materials	9/12/2007
ANS- 8 . 10	Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement	4/1/2005

Designation	Title	Final Approval Date
ANS- 8 . 12	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	3/20/2002
ANS- 8 . 14	Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors	5/25/2004
ANS- 8 . 15	Nuclear Criticality Control of Selected Actinide Nuclides	7/15/2005
ANS- 8 . 17	Criticality Safety Criteria for the Handling, Storage and Transportation of LWR Fuel Outside Reactors	9/14/2009
ANS- 8 . 19	Administrative Practices for Nuclear Criticality Safety	5/16/2005
ANS- 8 . 20	Nuclear Criticality Safety Training	9/16/2005
ANS- 8 . 21	Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	7/23/2001
ANS- 8 . 22	Nuclear Criticality Safety Based on Limiting and Controlling Moderators	12/8/2006
ANS- 8 . 23	Nuclear Criticality Accident Emergency Planning and Response	3/23/2007
ANS- 8 . 24	Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations	3/16/2007
ANS- 8 . 26	Criticality Safety Engineer Training and Qualification Program	6/20/2007
ANS- 8 . 27	Burnup Credit for LWR Fuel	8/14/2008
ANS- 10. 2	Portability of Scientific and Engineering Software	8/14/2009
ANS- 10. 4	Verification and Validation of Non-Safety-Related Scientific and Engineering Computer Programs for the Nuclear Industry	10/28/08
ANS- 10. 5	Accommodating User Needs in Scientific and Engineering Computer Software Development	4/17/2006
ANS- 14. 1	Operation of Fast Pulse Reactors	10/27/2009
ANS- 15. 1	The Development of Technical Specifications for Research Reactors	4/20/2007
ANS- 15. 2	Quality Control for Plate-Type Uranium-Aluminum Fuel Elements	3/23/2009
ANS- 15. 4	Selection and Training of Personnel for Research Reactors	8/17/2007
ANS- 15. 8	Quality Assurance Program Requirements for Research Reactors	9/14/2005
ANS- 15. 11	Radiation Protection at Research Reactors	10/8/2009
ANS- 15. 16	Emergency Planning for Research Reactors	9/23/2008
ANS- 15. 21	Format and Content for Safety Analysis Reports for Research Reactors	9/29/2006
ANS- 16. 1	Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure	8/4/2008
ANS- 19. 1	Nuclear Data Sets for Reactor Design Calculations	7/23/2002
ANS- 19. 3	Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors -- Slight change 2005 Added "Power"	9/16/2005
ANS- 19. 3 . 4	The Determination of Thermal Energy Deposition Rates in Nuclear Reactors	10/31/2008

Designation	Title	Final Approval Date
ANS- 19. 6 . 1	Reload Startup Physics Tests for Pressurized Water Reactors	11/29/2005
ANS- 19. 10	Methods for Determining Neutron Fluence in BWR and PWR Pressure Vessel and Reactor Internals	2/24/2009
ANS- 19. 11	Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors (for RV of 1997 issue)	12/17/2002
ANS- 40. 37	Mobile Low-Level Radioactive Waste Processing Systems	11/20/2009
ANS- 51. 10	Auxiliary Feedwater System for Pressurized Water Reactors	10/14/2008
ANS- 55. 1	Solid Radioactive Waste Processing System for Light-Water-Cooled Reactor Plants	6/15/09
ANS- 55. 4	Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants	5/14/2007
ANS- 55. 6	Liquid Radioactive Waste Processing System for Light Water Reactor Plants	5/14/2007
ANS- 56. 8	Containment System Leakage Testing Requirements	11/27/2002
ANS- 57. 1	Design Requirements for Light Water Reactor Fuel Handling Systems	7/20/2005
ANS- 57. 5	Light Water Reactors Fuel Assembly Mechanical Design and Evaluation	2/28/2006
ANS- 57. 8	Fuel Assembly Identification	1/12/2005
ANS- 57. 10	Design Criteria for Consolidation of LWR Spent Fuel	7/6/2006
ANS- 58. 3	Physical Protection for Nuclear Safety-Related Systems and Components	3/18/2008
ANS- 58. 6	Criteria for Remote Shutdown for Light Water Reactors	8/31/2001
ANS- 58. 8	Time Response Design Criteria for Safety-Related Operator Actions	8/25/2008
ANS- 58. 9	Single Failure Criteria for Light Water Reactor Safety-Related Fluid Systems	2/24/2009
ANS- 58. 11	Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors	7/23/2002
ANS- 58. 21	External-Events PRA Methodology	3/1/2007
ANS- 58. 23	Fire PRA Methodology	11/20/2007
ANS- 59. 3	Nuclear Safety Criteria for Control Air Systems	8/30/2002
ANS- 59. 51	Fuel Oil Systems for Safety-Related Emergency Diesel Generators	10/4/2007
ANS- 59. 52	Lubricating Oil Systems for Safety-Related Emergency Diesel Generators	10/4/2007

Project Activity Report

6/2/2010

NEFC

ANS- 2 . 2	Earthquake Instrumentation Criteria for Nuclear Power Plants	ANS-25	Farhang Ostadan (PhD)	WG Writing Draft
ANS- 2 . 3	Determining Tornado and Other Extreme Wind Characteristics at Nuclear Facility Sites	ANS-25	John D. Stevenson	WG Writing Draft
ANS- 2 . 6	Guidelines for Estimating Present & Forecasting Future Population Distributions Surrounding Nuclear Facility Sites	ANS-25	Barbara Mohrman	CC PINS Comment w/WG
ANS- 2 . 8	Determining Design Basis Flooding at Power Reactor Sites	ANS-25		PINS Development
ANS- 2 . 9	Evaluation of Ground Water Supply for Nuclear Facilities	ANS-25	James S. Bollinger	WG Writing Draft
ANS- 2 . 13	Evaluation of Surface-Water Supplies for Nuclear Power Sites	ANS-25	Lance Vail	PINS Development
ANS- 2 . 15	Criteria for Modeling and Calculating Atmospheric Dispersion of Routine Radiological Releases from Nuclear Facilities	ANS-24	John Ciolek & Cliff Glantz - VC	WG Writing Draft
ANS- 2 . 16	Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities	ANS-24	John Ciolek / Cliff Glantz - VC	WG Writing Draft
ANS- 2 . 17	Evaluation of Radionuclide Transport in Ground Water for Nuclear Facilities	ANS-25	James Bollinger/Todd Rasmussen	Ballot @ CC
ANS- 2 . 18	Standards for Evaluating Radionuclide Transport in Surface Water for Nuclear Power Sites	ANS-25	Angelos Findikakis	PINS Development
ANS- 2 . 21	Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink	ANS-25	Steve Vigeant / Cliff Glantz - VC	CC Ballot Comment w/ WG
ANS- 2 . 25	Surveys of Terrestrial Ecology Needed to License Thermal Power Plants	ANS-25	Chris Guggino	WG Writing Draft
ANS- 2 . 30	Assessing Capability for Surface Faulting at Nuclear Facilities	ANS-25	James Beavers & Ivan Wong (co-chairs)	WG Writing Draft
ANS- 2 . 31	Standard for Estimating Extreme Precipitation at Nuclear Facility Sites (Unapproved)	ANS-25	John D. Stevenson	CC PINS Comment w/WG
ANS- 3 . 1	Selection, Qualification, and Training of Personnel for Nuclear Power Plants	ANS-21	Kent Hamlin	WG Writing Draft
ANS- 3 . 4	Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants	ANS-21	Barbara Stevens	PINS Development
ANS- 3 . 7 . 1	Facilities and Medical Care for On-Site Nuclear Power Plant Radiological Emergencies	ANS-25	OPEN	PINS Development
ANS- 3 . 8 . 1	Criteria for Radiological Emergency Response Functions and Organizations	ANS-25	Ronald Markovich	PINS @ SB
ANS- 3 . 8 . 2	Criteria for the Functional and Physical Characteristics of Radiological Emergency Response Facilities	ANS-25	Ronald Markovich	PINS @ SB
ANS- 3 . 8 . 3	Criteria for Radiological Emergency Response Plans and Implementing Procedures	ANS-25	Ronald Markovich	PINS @ SB
ANS- 3 . 8 . 6	Criteria for the Conduct of Offsite Radiological Assessment for Emergency Response for Nuclear Power Plants	ANS-25	Ron Markovich	PINS @ SB
ANS- 3 . 8 . 10	Criteria for Modeling Real-time Accidental Release Consequences at Nuclear Facilities	ANS-24	John Ciolek & Cliff Glantz - V C	WG Writing Draft
ANS- 5 . 4	Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel	ANS-24	Carl E. Beyer	CC Ballot Comment w/ WG

ANS- 40. 21	Siting, Construction, and Operation of Commercial Low Level Radioactive Waste Burial Grounds	ANS-25	William Dornsife	CC PINS Comment w/WG
ANS- 40. 35	Volume Reduction of Low-Level Radioactive Waste or Mixed Waste	ANS-27	Dennis Ferrigno & Mark Gerboth	PINS Development
ANS- 41. 5	Verification and Validation of Radiological Data for Use in Waste Management and Environmental Remediation	ANS-24	Saleem Salaymeh & Tom Rucker (co-chair)	CC Ballot Comment w/ WG
ANS- 51. 10	Auxiliary Feedwater System for Pressurized Water Reactors	ANS-22	Earnestine Johnson	WG Writing Draft
ANS- 53. 1	Nuclear Safety Criteria and Safety Design Process for Modular Helium-Cooled Reactor Plants	ANS-28	Jim August	CC Ballot Comment w/ WG
ANS- 54. 1	General Safety Design Criteria for a Liquid Sodium Reactor Nuclear Power Plants	ANS-29	George Flanagan (Tentative)	PINS @ SB
ANS- 56. 8	Containment System Leakage Testing Requirements	ANS-21	Jim Glover	WG Writing Draft
ANS- 57. 2	Design Requirements for Light Water Reactor Spent Fuel Facilities at Nuclear Power Plants	ANS-27	Rob Tucker (?)	CC Ballot Comment w/ WG
ANS- 57. 3	Design Requirements for New Fuel Storage Facilities at LWR Plants	ANS-27	Rob Tucker (?)	CC Ballot Comment w/ WG
ANS- 58. 2	Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture	ANS-24	Jim Gilmer	PINS Development
ANS- 58. 8	Time Response Design Criteria for Safety-Related Operator Actions	ANS-22	Rick Hill	WG Writing Draft
ANS- 58. 14	Safety and Pressure Integrity Classification Criteria for Light Water Reactors	ANS-22	Mark Linn	CC Ballot Comment w/ WG
ANS- 58. 16	Safety Classification and Design Criteria for Non- Reactor Nuclear Facilities -- for NFSC approval 4/2010	ANS-22	Pranab Guha	CC PINS Comment w/WG

N16

ANS- 8 . 1	Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	ANS-8	Nick Brown & Doug Bowen	WG Writing Draft
ANS- 8 . 3	Criticality Accident Alarm System	ANS-8	Shean Monahan	WG Writing Draft
ANS- 8 . 10	Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement	ANS-8	Linda M. Farrell	WG Writing Draft
ANS- 8 . 12	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	ANS-8	Debdas Biswas	WG Writing Draft
ANS- 8 . 15	Nuclear Criticality Control of Selected Actinide Nuclides	ANS-8	Charles Rombough	WG Writing Draft
ANS- 8 . 19	Administrative Practices for Nuclear Criticality Safety	ANS-8	R.W. (Bill) Carson	WG Writing Draft
ANS- 8 . 20	Nuclear Criticality Safety Training	ANS-8	Ron Knief	PINS Development
ANS- 8 . 21	Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	ANS-8	David Erickson	WG Writing Draft
ANS- 8 . 22	Nuclear Criticality Safety Based on Limiting and Controlling Moderators	ANS-8	Michael Crouse	PINS Development
ANS- 8 . 25	Development of Nuclear Criticality Safety Related Postings	ANS-8	Gerard F. Couture	SB PINS Comments w/ WG
ANS- 8 . 28	Administrative Practices for the Use of Non-Destructive Assay Measurements for Nuclear Criticality Safety	ANS-8	Jerry McKamy	CC PINS Comment w/WG

N17

ANS- 5 . 1	Decay Heat Power in Light Water Reactors	ANS-19	Ian Gauld	WG Writing Draft
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ANS- 6 . 1 . 1	Neutron and Gamma-Ray Fluence-To-Dose Factors	ANS-6	Nolan Hertel	PINS Development
ANS- 6 . 1 . 2	Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection Calculations for Nuclear Power Plants	ANS-6	F. Arzu Alpan	WG Writing Draft
ANS- 6 . 3 . 1	Program for Testing Radiation Shields in Light Water Reactors (LWR)	ANS-6	Jennifer Tanner	PINS Development
ANS- 6 . 4 . 3	Gamma-Ray Attenuation Coefficients & Buildup Factors for Engineering Materials	ANS-6	Jeffrey C. Ryman Jeffrey C. Ryman (PhD)	PINS Development
ANS- 10. 3	Documentation of Computer Software	ANS-10	Ted Quinn	PINS Development
ANS- 10. 7	Non-Real Time, High Integrity Software for the Nuclear Industry	ANS-10	Charles Martin	WG Writing Draft
ANS- 15. 2	Quality Control for Plate-Type Uranium-Aluminum Fuel Elements	ANS-15	John Sease/Clinton Dana Cooper	WG Writing Draft
ANS- 15. 8	Quality Assurance Program Requirements for Research Reactors	ANS-15	Sean O'Kelly	WG Writing Draft
ANS- 15. 17	Fire Protection Program Criteria for Research Reactors	ANS-15	Leo Bobek	CC Ballot Comment w/ WG
ANS- 15. 19	Shipment and Receipt of Special Nuclear Material (SNM) by Research Reactor	ANS-15	Les Foyto	WG Writing Draft
ANS- 15. 20	Criteria for the Reactor Control and Safety Systems of Research Reactors	ANS-15	Thomas Myers	PINS Development
ANS- 15. 21	Format and Content for Safety Analysis Reports for Research Reactors	ANS-15	Alexander Adams	WG Writing Draft
ANS- 19. 1	Nuclear Data Sets for Reactor Design Calculations	ANS-19	Bob Little	WG Writing Draft
ANS- 19. 3	Determination of Steady-State Neutron Reaction-Rate Distributions and Reactivity of Nuclear Power Reactors -- Slight change 2005 Added "Power"	ANS-19	Ben Rouben	WG Writing Draft
ANS- 19. 6 . 1	Reload Startup Physics Tests for Pressurized Water Reactors	ANS-19	C.T. Rombough	WG Writing Draft
ANS- 19. 9	Delayed Neutron Parameters for Light Water Reactors	ANS-19	Mikey Brady Raap	WG Writing Draft
ANS- 19. 11	Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors (for RV of 1997 issue)	ANS-19	Russ Mosteller	WG Writing Draft
ANS- 19. 12	Nuclear Data for the Production of Radioisotope	ANS-19	Marc Garland / Robert Schenter	WG Writing Draft
<u>RISC</u>				
ANS- 58. 22	Low Power and Shutdown PRA Methodology	RISC	Don Wakefield	CC Ballot Comment w/ WG
ANS- 58. 24	Severe Accident Progression and Radiological Release (Level 2) PRA Methodology to Support Nuclear Installation Applications	RISC	Mark Leonard	WG Writing Draft
ANS- 58. 25	Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications	RISC	Keith Woodard	WG Writing Draft

Delinquent Standards

6/2/2010

NFSC

Designation	Title	Subcommittee	ANSI Approval Date	Extension Date	Action Needed By	Project Activity	History
ANS- 2 . 2	Earthquake Instrumentation Criteria for Nuclear Power Plants	ANS-25	11/21/2002	12/31/2010	12/31/2010	WG Writing Draft	Approved as N18.5-1974; revised 1978; revised 5/3/88. Referenced in RG 1.12. Extended to 12/31/95. Second (maximum) extension to 12/31/98. Nuppsco ballot on revision closed 9/30/97. Public review closes 11/28/97. Consensus not resolved. ANSI admin withdrew the 1988 version of this std on 5/19/2000. 11/21/2002- ANSI approved revision. Per Mazzola 6/04 NFSC Report -- reaffirmation should be address in 2006. 11/22/05: Per Dennis Ostrom, this standard could be written for all nuclear facilities -- C. Mazzola suggested preparing a PINS in 2006 to revise for this direction. Looking for new chair. Extension granted until 12/31/2010. Farhang Ostadan appointed WGC 12/11/08 and will lead a revision. PIINS for RV submitted to ANSI 8/18/09.
ANS- 2 . 10	Criteria for the Handling and Initial Evaluation of Records from Nuclear Power Plant Seismic Instrumentation	ANS-21	4/14/2003	12/31/2011	12/31/2011	NONE	Approved in 1979. Under revision and ballot. Extended to 7/31/86; maximum extension to 12/31/89. ANSI withdrawn on 4/90. Re-ballot on 6/19/91. Substantive changes to draft. Ballot new draft. Re-ballot due 3/19/98. 2.01-this std has been transferred from ANS-25 subcommittee to ANS-21. 09/30/02- sent to third ballot to NFSC. ANSI Approved - April 14, 2003; Publication Delivered: June 1, 2004. Extension granted until 12/31/2011.
ANS- 3 . 4	Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants	ANS-21	7/23/2002	12/31/2010	12/31/2010	PINS Development	Approved as N546 1976; revised 1983; reaffirmed 4/18/88; revised 2/7/96. Extension until 12/31/02. Reaffirmed-ANSI approved 7/23/02 (this RF also includes the new statement to the Fwd.). Per Mike Ruby at June 04 NFSC meeting, just lost WG Chair. Action Item 11/05-07 for Tim Dennis to find new chair. Extension granted until 12/31/2010. 1/2009: New Chair B. Stevens committed to project.

ANS- 56. 8	Containment System Leakage Testing Requirements	ANS-21	11/27/2002	12/31/2010	12/31/2010	WG Writing Draft	Approved 1981. Revised 1987. Was originally N45.4-1972 (ANS-7.60). Revised 1/20/87. Extended to 12/31/94. Revised 8/4/94. 11/27/2002- ANSI approved revision. Suggested at June 04 NFSC meeting to make next revision performed based. J. Glover requested PINS form for revision via phone call 3-21-05. Per e-mail from J. Glover 3-21-05, this standard was made performed based in the 2002 revision. Per 11/10/06 email: WG discussing proper direction for revision - PINS will be submitted before work on draft begins. Extension granted until 12/31/2010. WGC provided PINS to SCC T. Dennis. PINS sent to ANS-21 for approval 8/10/ 2007. PINS reviewed by SB, WGC resolving comments. PINS approved by SB and sent to ANSI 4/30/2010.
ANS- 57. 8	Fuel Assembly Identification	ANS-27	1/12/2005	12/31/2012	1/12/2010	NONE	Issued first as Published Draft July 1971, ANS-13.8, "Fuel Assembly Identification." Approved as N18.3-1972. Revised 1978. Reaffirmed 9/11/1987. Ref. in RG 5.1. Extended to 12/31/94. 2nd extension to 12/31/97. Revision approved 4/6/95. First extension to 12/31/03. 3/14/2003-ANSI granted LAST ext to 04/05/2005. At ballot for reaffirmation - ballot due 3/22/04. Ballot closed 4/23/04 - Sent ballot tally letter to Fred Pineau per his instructions. 10/04 --No WG Chair available at this time. Looking for new WGC to respond to comments. 12/16/04- Don Spellman gave OK to send to SB for Letter Ballot. 12/17/04 - Letter Ballot sent to Standards Board - due date is 1/4/2005. ANSI approved reaffirmation: 1/12/2005. Ext. granted until 12/31/2012.
ANS- 58. 6	Criteria for Remote Shutdown for Light Water Reactors	ANS-21	8/31/2001	8/31/2011	12/31/2009	NONE	Approved 1983. Reaffirmed 03/17/1989. Combination of ANS-51.9 and 52.5. Under MC-1 management. Extended to 12/31/96. Revised 02/07/96. Mike Wright requested ballot for reaffirmation. Reaffirmed 8/31/01. ANSI granted extension until 12/31/09. Action Item 11/05-07 for Tim Dennis to find new WGC. Ext granted until 8/31/11 -- last ext possible.
ANS- 58. 11	Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors	ANS-22	7/23/2002	12/31/2010	12/31/2010	NONE	Approved 5/10/83. Reaffirmed 02/02/1989. Under MC-1 Management. Extended to 12/31/96. SSC approves PC November 1992. Revised 7/10/95. First extension to 12/31/03. Reaffirmed 7/23/02 with new statement to the foreword. Transferred from ANS-21 to ANS-22 in 2007 NFSC restructuring. Extension granted until 12/31/2010. Open Action Item for D. Newton to find new WGC.
ANS- 59. 3	Nuclear Safety Criteria for Control Air Systems	ANS-22	8/30/2002	12/31/2010	12/31/2010	NONE	Approved 1977. Revised 09/14/84. Extended to 12/31/92. Revised 7/28/92. Draft on file dated 9/1/83. Second extension to 7/28/02. At ballot RF ballot 2/23/02. ANSI withdrew on 7/26/2002. Reaffirmed 8/30/2002. Extension granted until 12/31/2010. Standard reviewed by R. Hill. Findings sent to D. Newton/M. Ruby for consideration if RF appropriate.

N16

Designation	Title	Subcommittee	ANSI Approval Date	Extension Date	Action Needed By	Project Activity	History
ANS- 8 . 3	Criticality Accident Alarm System	ANS-8	6/12/2003	6/12/2011	6/12/2011	WG Writing Draft	Approved as N16.2-1969. Revised 1979. Revised (and combined with N2.3) 1986; (ref. in RG 8.12). Revised 8/29/86. Revision to ANS-8 ballot 9/10/92; closes 10/12/92. Extended to 12/31/93. 2nd extension to 12/31/95. 3rd extension to 12/31/96. Withdrawn 12/31/1996. Revised 5/28/97. ISO 7753 in file for comparison. ANSI reaffirmed on 6/12/2003. According to N16 SB 11/2004 report, revision in works. Per 11/05 Minutes, PINS form in works for revision. Work has been underway for some time on the revision w/o a PINS form. Project is currently out of compliance with ANSI's PINS requirement. New WGC 9/2007: Shean Monahan. Sent email 5/20/08 to S. Monahan regarding PINS requirement. Extension granted until 6/12/2001. N16 approved PINS for RV on 3/17/2010. PINS gained SB approved 4/20/2010 and sent to ANSI same day.
ANS- 8 . 6	Safety in Conducting Subcritical Neutron-Multiplication Measurements in Situ	ANS-8	7/23/2001	7/23/2011	12/31/2009	NONE	Approved at N16.3-1969. Revised 1975. Revised 5/16/83. Reaffirmed 11/30/88. Extended to 12/31/95. Reaffirmed 9/12/95. Looking to revise. First extension to 12/31/03. Reaffirmed 7/23/01. Per WGC (Valentine) e-mail of 5/12/05, he does not feel that a revision is needed. Per 11/05 minutes: no activity in WG but recommends keeping the standard alive as long as as there was someone interested. ANSI granted extension until 12/31/09. Tim Valentine retired as 8.6 WGC via email 5-7-07. Bill Meyers appointed new chair as of Sept 2007. 10/2008: Email sent to WGC to consider revision/reaffirmation/withdrawal. Last ext. granted until 7/23/2011.
ANS- 8 . 10	Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement	ANS-8	4/1/2005		4/1/2010	WG Writing Draft	Approved as N16.8-1975. Revised 9/14/83. Reaffirmed 11/30/88. First extension to 12/31/95. Second extension to 12/31/98. Reaffirmed 2/4/99. (7/21/03) - Requested extension from ANSI until 12/31/2004. (8/20/03) - ANSI granted extension until 12/31/2004. Second extension granted until 12/31/07. Subcommittee reaffirmation ballot closed Sept. 16. Received verbal approval to sent reaffirmation to N16. Ballot sent to N16 10-28-04 due 12-17-04. BSR-8 sent to ANSI 10-29-04. Ballot extended to 1/15/05. Reaffirmation approved 4/1/05. PINS for revision approved and submitted to ANSI 1/31/06. Linda Farrell replaced Harry Felsler as WGC (some time before June 2007).

ANS- 8 . 12	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	ANS-8	3/20/2002	12/31/2010	12/31/2010	WG Writing Draft	Published in 1978 (Ref. in RG 3.47). Being revised as ANS-8.12.1 with title change; see below. First extension to 12/31/01. (Rev. of ANS-8.12-1978). Revised 9/11/87. First extension to 12/31/94. Reaffirmed 2/17/93. 4/6/93: Project charter created for "its eventual revision." (Published version calls it "ANSI/ANS-8.12-1987. Reaffirmed 3/20/2002. 8/20/03-ANSI granted extension until 12/31/2007. New chair 6/1/06: Debdas Bix was replaced Song Huang. Extension granted until 12/31/2010. PINS for revision submitted to ANSI 9/24/07.
ANS- 8 . 14	Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors	ANS-8	5/25/2004	12/31/2012	5/25/2009	NONE	Draft should be ready for 11/87 meeting of ANS-8. 4/30/2003- Schlessner said the scope is changing. 08/03- PINS was balloted at ANS8/N16 level and approved. ANSI approved this new standard on 5/25/04. Available for Sale 10/18/04. Per ANS-8 11/2005 minutes: WG has not meet since 2004 revision. Ext granted until 12/31/12.
ANS- 8 . 19	Administrative Practices for Nuclear Criticality Safety	ANS-8	5/16/2005		5/16/2010	WG Writing Draft	Approved 10/1/84. Reaffirmed 8/29/89. SSC approves November 1992. Extended to 12/31/96. Revised 4/17/96. 2/18/04 - requested extension from ANSI until 12/31/06. PINS for revision approved by N16 5/10/04. PINS approved by SB 6/15/04 and sent to ANSI 6/28/04. ANS-8.19-2005 rec'd ANSI approval 5/16/05. Per ANS-8 minutes 11/05: WG discussion revision to include addition of words describing the qualifications of a peer. Received email from WGC 5/19/06 regarding revision underway. PINS for RV submitted to ANSI 11/20/07.
ANS- 8 . 21	Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	ANS-8	7/23/2001	12/31/2009	7/23/2011	WG Writing Draft	Approved 6/12/95. First extension to 12/31/03. Reaffirmed 7/23/01. (7/21/03) - Requested extension from ANSI until 12/31/2005. (8/20/03) - ANSI granted extension until 12/31/2005. As 5th anny is not until 7/23/06, extension should not have been file. WG meeting at 11/04 ANS meeting. Per N16 SB report 11/2004 -- revising. Schlessner e-mail WGC 5/10/05 to recommend maintenance as 5th anny is approaching. ANSI granted extension until 12/31/09. May 2007. PINS for a revision of ANS-8.21 to incorporate a revision of ANS-8.5 approved w/o comment by SB -- submitted to ANSI 2/12/08. H. Toffer retired as WGC effective 12/1/08 - David E rickson took over as WGC same day.

N17

Designation	Title	Subcommittee	ANSI Approval Date	Extension Date	Action Needed By	Project Activity	History
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ANS- 5 . 1	Decay Heat Power in Light Water Reactors	ANS-19	4/1/2005		4/1/2010	WG Writing Draft	1971 and 1973 drafts printed. Approved 1979. Errata sheet issued. Reaffirmed 7/17/85. Approved 8/23/94. ISO 10645 file for comparison. Requested 1st extension to 12/31/02. ANSI approved. At ballot for reaffirmation (8/01). According to SSC meeting in 11.01, this std was transferred to N17's ANS-19 around 1996. Therefore, the RF ballot under NFSC has been terminated. N17's ANS-19 is presently revising ANS-5.1. June 10-2003: Requested ext. to 12/04 from ANSI - ANSI approved extension until August 22, 2004 for this extension. Sent Dr. Brady-Rapp information regarding extension date - 6/13/03. PINS submitted to ANSI on 5/4/04 for revision of ANS-5.1-1994. BSR-8 submitted concurrently with N17 ballot on 10/5/04. ANSI approved 4/1/05. Per 6/2005 ANS-19 minutes: WGM working on "wish list" for next revision. Per 6/2005 minutes, WG to begin drafting a new revision. Notified of new chair 6/2006 -- Ian Gauld replaced Mikey Brady Raap. PINS for RV of 2005 issue submitted to ANSI 2/26/08.
ANS- 19. 1	Nuclear Data Sets for Reactor Design Calculations	ANS-19	7/23/2002		7/23/2012	WG Writing Draft	Approved as N411-1975. Revised 7/2/83. Reaffirmed 3/3/89. First extension to 12/31/96. Second extension to 12/31/99. Revision balloted 2/18/00; comments being resolved. ANSI withdrawn 5/19/00. ANSI approved revision - July 23, 2002. Publication Delivered: June 1, 2004. Per 6/2005 ANS-19 minutes, existing standard was reviewed and determined to need revision. PINS approved by N17 & SB sent to ANSI 9/5/06.
ANS- 19. 11	Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Pressurized Water Reactors (for RV of 1997 issue)	ANS-19	12/17/2002	12/31/2010	12/31/2010	WG Writing Draft	Approved 9/25/97. Publication in process and completed. ANSI granted extension until 12/31/2005. Reaffirmed 12/17/2002. (7/21/03) - Requested extension from ANSI until 12/31/2007. (8/20/03) - ANSI granted extension until 12/31/2007. Maintenance will be discussed at ANS-19 meeting -- 11/15/04. Per 6/2005 minutes, Mosteller will review and decide if reaffirmation or revision is appropriate. Per 6/2007 ANS-19 minutes, Mosteller reported that there will be a revision but nothing major. Extension granted until 12/31/2010. PINS approved by N17 with title change. "Water Moderated Power Reactors" changed to "Pressurized Water Reactors." Approved PINS sent to ANSI 1/23/08. WGC Mosteller provided draft to D. Cokinos for subcommittee review 11-3-09.

STANDARDS SALES REPORT
November 1, 2009 to May 15, 2010

Designation & Title of Standard	# Of Paper/Electronic Copies Sold	Total Price
ANS-1-2000;R2007 , Conduct of Critical Experiments	3	93.00
ANS-2.2-2002 , Earthquake Instrumentation Criteria for Nuclear Power Plants	1	44.00
ANS-2.8-1992;W2002 , Determining Design Basis Flooding at Power Reactor Sites	2	236.00
ANS-2.10-2003 , Criteria for the Handling and Initial Evaluation of Records from Nuclear Power Plant Seismic Instrumentation	1	37.00
ANS-2.23-2002;R2009 , Nuclear Plant Response to an Earthquake	6	561.00
ANS-2.26-2004;R2010 , Categorization of Nuclear Facility Structures, Systems, and Components For Seismic Design	2 / 6	742.60
ANS-2.27-2008 , Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments	3 / 6	854.40
ANS-2.29-2008 , Probabilistic Seismic Hazard Analysis	2 / 7	981.00
ANS-3.1-1993;R1999;W2009 , Selection, Qualification Training of Personnel for NPPs	6	414.00
ANS-3.2-1994;R1999;W2006 , Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants	2	246.00
ANS-3.2-2006 , Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants	1	115.00
ANS-3.4-1983;R1988; W1996 , Medical Certification and Monitoring of Personnel Requiring Operator LTC	1	37.00
ANS-3.4-1996;R2002 , Medical Certification and Monitoring of Personnel Requiring Operator LTC	6	255.20
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	20 / 19	3619.20
ANS-3.8.7-1998;W2008 , Criteria for Planning, Development, Conduct and Evaluation of Drills and Exercises for Emergency Preparedness	1	50.00
ANS-3.11-2005 , Determining Meteorological Information at Nuclear Facilities	1	107.00
ANS-4.5-1980;R1986;W2001 , Criteria for Accident Monitoring Functions in Light-Water-Cooled Reactors	1	50.40
ANS-5.1-1994;W2004 , Decay Heat Power in Light Water Reactors	1 / 1	228.00
ANS-5.1-2005 , Decay Heat Power in Light Water Reactors	8 / 4	1428.00
ANS-5.4-1982;W1993 , Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel	2	70.30
ANS-5.10-1998;R2006 , Airborne Release Fractions at Non-Reactor Nuclear Facilities	1	104.00
ANS-6.1.1-1991;W2001 , Neutron and Gamma-Ray Fluence-To-Dose Factors	2	153.90
ANS-6.1.2-1999;R2009 , Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection Calculations for Nuclear Power Plants	9	260.40
ANS-6.3.1-1987;R1998;R2007 , Program for Testing Radiation Shields in LWRs	1	62.00
ANS-6.4-2006 , Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants	1 / 2	492.00
ANS-6.4.2-2006 , Specification for Radiation Shielding Materials	3 / 1	241.80
ANS-6.4.3-1991;W2001 , Gamma-Ray Attenuation Coefficients and Buildup Factors for Engineering Materials	4	736.00
ANS-6.6.1-1987;R1998;R2007 , Calculation & Measurement Direct and Scattered Gamma Radiation from LWR Nuclear Power Plants	1	112.00
ANSI/ANS/HpSSC-6.8.1-1981; W1992 , Location and Design Criteria for Area Radiation Monitoring Systems for Light Water Nuclear Reactors	2	112.00
ANS-8.1-1998;R2007 , Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	6 / 6	862.50
ANS-8.3-1997;R2003 , Criticality Accident Alarm Systems	4 / 7	866.70
ANS-8.5-1996;R2002;R2007 , Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material	4	200.00
ANS-8.6-1983;R1988;R1995;R2001 , Safety in Conducting Subcritical Neutron-Multiplication	2	50.00
ANS-8.7-1998;R2007 , Guide for Nuclear Criticality Safety in the Storage of Fissile Materials	5	338.10

STANDARDS SALES REPORT
November 1, 2009 to May 15, 2010

ANS-8.9-1987;R1995;W2000 , Nuclear Criticality Safety Guide for Pipe Intersections Containing Aqueous Solutions of Enriched Uranyl Nitrate	1	39.60
ANS-8.10-1983;R1988;R1999;R2005 , Criteria for Nuclear Criticality Safety Controls	3 / 2	181.30
ANS-8.12-1987;R1993;R2002 , Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	5	367.50
ANS-8.14-2004 , Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors	3	107.30
ANS-8.15-1981;R1987;R1995;R2005 , Nuclear Criticality Control of Special Actinide Elements	5	331.20
ANS-8.17-2004;R2009 , Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors	5 / 4	321.90
ANS-8.19-2005 , Administrative Practices for Nuclear Criticality Safety	3 / 3	182.90
ANS-8.20-1991;R1999;R2005 , Nuclear Criticality Training	6	218.30
ANS-8.21-1995;R2001 , Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	3 / 1	148.00
ANS-8.22-1997;R2006 , Nuclear Criticality Safety Based on Limiting & Controlling Moderators	5	215.60
ANS-8.23-2007 , Nuclear Criticality Accident Emergency Planning & Response	5 / 3	723.80
ANS-8.24-2007 , Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations	4 / 3	591.60
ANS-8.26-2007 , Criticality Safety Engineer Training and Qualification Program	4 / 3	213.90
ANS-8.27-2008 , Burnup Credit for LWR Fuel	3 / 7	358.90
ANS-10.2-2000;R2009 , Portability of Scientific and Engineering Software	1	33.30
ANS-10.4-1987;R1998;W2008 , Guidelines for the Verification and Validation of Scientific and Engineering Computer Programs in the Nuclear Industry	1 / 2	207.10
ANS-10.4-2008 , Verification and Validation of Non-Safety-Related Scientific and Engineering Computer Programs for the Nuclear Industry	1 / 4	504.70
ANS-14.1-2004;R2009 , Operation of Fast Pulse Reactors	3	111.00
ANS-15.1-1990; R1999;W2007 , Development of Technical Specifications for Research Reactors	4	224.00
ANS-15.1-2007 , The Development of Technical Specifications for Research Reactors	6 / 8	1027.50
ANS-15.2-1999;R2009 , Quality Control for Plate-Type Uranium-Aluminum Fuel Elements	8	365.00
ANS-15.4-1988;R1999;W2007 , Selection and Training of Personnel for Research Reactors	1	44.00
ANS-15.4-2007 , Selection and Training of Personnel for Research Reactors	6 / 3	492.80
ANS-15.7-1977;R1986;W1996 , Research Reactor Site Evaluation	1	50.00
ANS-15.8-1976;R1986;W1995 , Quality Assurance Program Requirements for Research Reactors	4	124.00
ANS-15.8-1995;R2005 , Quality Assurance Program Requirements for Research Reactors	7	345.00
ANS-15.10-1994;W2004 , Decommissioning of Research Reactors	4	376.00
ANS-15.11-1993;R2004;W2009 , Radiation Protection at Research Reactor Facilities	5	480.00
ANS-15.11-2009 , Radiation Protection at Research Reactors	3 / 1	382.20
ANS-15.16-1982;R1988;R2000;W2008 , Emergency Planning for Reactors	4	176.00
ANS-15.16-2008 , Emergency Planning for Research Reactors	4 / 5	442.50
ANS-15.17-1981;R1987;R2000;W2010 , Fire Protection Program Criteria for Research Reactors	5	185.00
ANS-15.19-1991;W2001 , Shipment and Receipt of SWM by Research Reactor Facilities	3	225.00
ANS-15.21-1996;R2006 , Format and Content for Safety Analysis Reports for Research Reactors	5	575.00
ANS-16.1-2003;R2008 , Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure	2 / 4	631.30
ANS-18.1-1984;W1994 , Radioactive Source Term for Normal Operation of LWRs	4	276.00
ANS-18.1-1999;W2009 , Radioactive Source Term for Normal Operation of LWRs	3	217.50
ANS-19.1-2002 , Nuclear Data Sets for Reactor Design Calculations	2 / 1	168.00
ANS-19.3-2005 , The Determination of Steady State Neutron Reactor Rate Distributions and Reactivity of Nuclear Power Reactors	1 / 1	192.00
ANS-19.3.4-2002;R2008 , The Determination of Thermal Energy Deposition Rates in Nuclear Reactors	1 / 1	88.00

STANDARDS SALES REPORT
November 1, 2009 to May 15, 2010

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	62.00
ANS-19.6.1-2005 , Reload Startup Physics Test for Pressurized Water Reactors	0 / 2	188.00
ANS-19.10-2009 , Methods for Determining Neutron Fluence in BWR and PWR Pressure Vessel and Reactor Internals	6 / 1	283.80
ANS-19.11-1997;R2002 , Calculation and Measurement of the Moderator Temperature Coefficient of Reactivity for Water Moderated Power Reactors	2	150.00
ANS-40.37-1993;W2004 , Mobile Radioactive Waste Processing Systems	1	112.00
ANS-40.37-2009 , Mobile Low-Level Radioactive Waste Processing Systems	2 / 1	348.00
ANS-51.1-1983;R1988;W2000 , Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants	10	1626.80
ANS-52.1-1983;R1988;W2001 , Nuclear Safety Criteria for the Design of Stationary Boiling Water Reactor Plants	2	311.60
ANS-51.10-1991;R2002;R2008 , Auxiliary Feedwater System for Pressurized Water Reactors	1	87.00
ANS-55.1-1992;R2000;R2009 , Solid Radioactive Waste Processing System for Light-Water-Cooled Reactor Plants	7	760.50
ANS-55.4-1993;R1999;R2007 , Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants	2	204.00
ANS-55.6-1993;R1999;R2007 , Liquid Radioactive Waste Processing System for Light Water Reactor Plants	3	301.60
ANS-56.2-1984;R1989;W1999 , Containment Isolation Provisions for Fluid Systems After a LOCA	2	271.70
ANS-56.8-1994;W2002 , Containment System Leakage Testing Requirements	1	96.30
ANS-56.8-2002 , Containment System Leakage Testing Requirements	1 / 2	321.00
ANS-56.11-1988;W2000 , Design Criteria for Protection Against the Effects of Compartment Flooding in LWR Plants	2	112.00
ANS-57.1-1992;R1998;R2005 , Design Requirements for Light Water Reactor Fuel	8	442.40
ANS-57.2-1983;W1999;R2006 , Design Requirements for LWR Spent Fuel Facilities at NPPs	8	772.00
ANS-57.3-1983;W1993 , Design Requirements for New Fuel Storage Facilities at LWR Plants	2	100.00
ANS-57.5-1996;R2006 , Light Water Reactors Fuel Assembly Mechanical Design and Evaluation	4	262.20
ANS-57.8-1995;R2005 , Fuel Assembly Identification	8	288.60
ANS-57.9-1984;W1992 , Design Criteria for an Independent Spent Fuel Storage Installation (Dry Storage Type)	1 / 2	414.00
ANS-58.2-1988;W1998 , Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture	12	1832.00
ANS-58.3-1992;R1998;R2008 , Physical Protection for Nuclear Safety-Related Systems & Components	5	545.00
ANS-58.6-1996;R2001 Criteria for Remote Shutdown for Light Water Reactors	6	264.00
ANS-58.8-1994;R2001;R2008 , Time Response Design Criteria for Safety-Related Operator Actions	10	655.50
ANS-58.9-1981;R1987;R2002 , Single Failure Criteria for Water Reactor Safety-Related Fluid Systems	14	495.80
ANS-58.11-1995;R2002 , Design Criteria for Safe Shutdown Following Selected Design Basis Events in Light Water Reactors	6	336.00
ANS-58.14-1993;W2003 , Safety and Pressure Integrity Classification Criteria for LWR	4	596.70
ANS-58.21-2007 , External Events PRA Methodology	6 / 1	1227.60
ANS-58.23-2007 , Fire PRA Methodology	1 / 3	625.30
ANS-59.3-1992;R2002 , Nuclear Safety Criteria for Control Air Systems	6	264.00
ANS-59.51-1997;R2007 , Fuel Oil Systems for Safety-Related Emergency Diesel Generators	1	62.00
ANS-59.52-1998;R2007 , Lubricating Oil Systems for Safety-Related Emergency Diesel Generators	1	56.00
Misc Standards and Drafts	8	612.60
GRAND TOTAL		\$41,880.20

**IEEE/NPEC Liaison Report to ANS
Donald J. Spellman**

Since there was so much information in the actual minutes of the recent NPEC meeting notes, I decided to edit a truncated version for this liaison report. Note the emphasis in here on working with IEC and ISO. Also note, emphasis added, the comment that IAEA is a standards organization. ANS needs to consider how we will or will not work directly with IAEA and ISO.

Don Spellman, June 6, 2010

**Nuclear Power Engineering Committee (NPEC)
Meeting Notes: N10-1, January 20, 2010**

7:30 AM- 5:00 PM

- 1. **Call to Order** J. MacDonald
The Chair, J. MacDonald called the meeting to order at 7:30 AM

- 2. **Introductions, Changes to Agenda** J. MacDonald

- 2.1 Quorum Roll Call
Quorum roll call was taken by the NPEC Secretary. 23 NPEC members out of 35 were in attendance.
- 2.2 Approval of Agenda and General Remarks
 - a. The draft NPEC agenda was approved as amended.
 - b. The following guests were noted to be in attendance:
 - Jean-Paul Bouard EDF, IEC Secretary of SC 45A
 - Gary Johnston IAEA, IEC Chairman of SC 45A,
 - Jodi Haasz IEEE Standards Activities Senior Program Manager, International Standards Programs
 - Kjell Spang KS miltek, IEC Chairman of IEC/IEEE 62582 Series Standards on Condition Monitoring

- 2.4 ADCOM
 - a. The IEEE SA has recently revised their policies and procedures manual has been revised and is providing additional requirements for Working Groups which take effect 3/31/2010.
 - b. NPEC had discussions on standard IEEE 690, "IEEE Standard for the Design and Installation of Cable Systems for Class 1E Circuits in Nuclear Power Generating Stations" which presently resides in ED&PGC. IEEE 690 is a design standard and SC 4 Chair G. Attarian and S. Aggarwal will be performing an inquiry to see if it should be moved to NPEC.
 - e. Ongoing efforts with IAEA Mutli-National Design and Evaluation Program (MDEP). Additional collaboration is being looked at in the area of digital I&C in the nuclear area. IEEE experts in this

area are being requested for the development of new digital I&C standards.

3. **Secretary's Report** G. Ballassi
 - 3.1 Review and Approval of Previous Meeting Minutes
 - a. The previous meeting minutes was approved as modified.
 - 3.2 Status of Action Items
 - a. See NPEC Action Items table for results.
 - 3.3 Status of NPEC Membership (2010)
 - a. Presently we have 35 members.
4. **Vice Chairman's Report** S. Aggarwal
 - 4.1 Meeting Schedule

The following are details of the upcoming meetings:

10-2	July 19-21, 2010	Lake Tahoe
11-1	Jan. 24-26, 2011	Scottsdale, AZ
11-2	July 24-26, 2011	Dana Point, CA.
 - 4.1.1 Vice Chair Remarks
 - c. IEEE is taking the initiative to work on standards in the area of Smart Grid. IEEE Technical Council has established a smart grid website (smartgrid.IEEE.org).
 - d. NIST has established a Smart Grid Advisory Board. Detail can be found on their website.
 - g. IEEE is looking into development of new standards in the digital I&C area. NPEC members are requested look to experts in their organization to identify what new standard are needed in the digital I&C area.
 - 4.3 Risk Coordinating Committee Report S. Aggarwal

IEEE was invited to join the Risk Coordinating Committee. S Aggarwal was only able to attend 1 of their 2 meetings. S. Aggarwal presented a White Paper on Risk developed by SC 3. The paper was well received by the participants.
5. **Preview:**
 - 5.1 IEC 62582-1 Nuclear Power Plants – Instrumentation and control important to safety – Electrical equipment condition monitoring methods, Part 1: General Jim Gleason

A joint NPEC roll call was taken for IEC 62582-1, IEC 62582-2 and IEC 62582-4 and the vote was unanimous for proceeding with these standards to ballot.
 - 5.1.a IEC 62582-2 Nuclear Power Plants – Instrumentation and control important to safety – Electrical equipment condition monitoring methods, Part 2: Indenter modulus Jim Gleason

A joint NPEC roll call was taken for IEC 62582-1, IEC 62582-2 and IEC 62582-4 and the vote was unanimous for proceeding with these standards to ballot.

- 5.2 IEC 62582-4 Nuclear Power Plants – Instrumentation and control important to safety – Electrical equipment condition monitoring methods Part 4: Oxidation induction techniques Jim Gleason

A joint NPEC roll call was taken for IEC 62582-1, IEC 62582-2 and IEC 62582-4 and the vote was unanimous for proceeding with these standards to ballot.

- 5.3 P497 - Standard for Accident Monitoring Instrumentation for Nuclear Power Generating Stations G. Hostetler

G. Hostetler noted that the standard was updating for current for both new and operating plant upgrade applications. Revision made were intent to address digital technologies.

NPEC roll call vote was unanimous for proceeding with the ballot process after providing clarification sub-clause 6.2 to address common cause failure for analog equipment.

6. **Harmonization of IEEE and IEC Standards** – Ms Jodi Haasz – IEEE Senior Program Manager, International Standards Programs

Jodi Haasz introduced herself and provided a brief background of her IEEE work experience and present role.

The presentation explained the dual-logo program between IEEE and IEC. The program allow for the adoption or joint development of IEC and IEEE standards. When the document goes through the final ballot process for approval within the organizations only the front matter of the standard can change.

There has been an amendment to the original joint development agreement signed by the organizations in 2002. The amendment allows for the joint development of documents for new projects and the revision of existing standards in either organization. There is also an implementation agreement development with IEC SC 45A to assist in its implementation.

Harmonization is an informal process occurs when both organizations have a very similar document but because of some differences the two documents cannot become one document. Therefore, both organizations will have their own standards with similar contents.

7. **Technical Presentations:**

- 7.1 P1819 - Standard for Risk-Informed Categorization and Treatment of Electrical and Electronic Equipment at Nuclear Power Generating Stations and Other Nuclear Facilities,

- 7.2 IEC/SC 45A, Overview and collaboration with IEEE/NPEC, - John-Paul Bouard, IEC SC 45A Secretary

- John-Paul Bouard provided background on the history of International Electrotechnical Commission (IEC). Presently there are 67 countries who are members of IEC actively involved in the development of standards and 80 other countries that are

- The IEC and International Organization for Standardization (ISO) are a joint organization with their standards common to both. IEC also has an agreement with standard development with both the International Atomic Energy Agency (IAEA) and IEEE.
- 7.3 Reliability Of Onsite Emergency Power For The New Generation And Advanced Nuclear Power Plants
- 7.4 Plans for Update of IAEA Safety Guides for I&C and Electrical Power Systems
- The presentation provided background of IAEA being a standards organization which develops guidance standards in the area of atomic energy safety providing the position of the United Nations. IAEA also provides peer review services to member states. The IAEA Safety Guides have been incorporation into some member states regulations directly or as referenced. (emphasis mine - DJS)
 - IAEA Safety Guides standards are in the areas of nuclear power plant design and quality assurance. These standards are available on the IAEA website at no charge.
 - IAEA Safety Guides are top-level standard documents being updated in the areas of I&C and Electrical. The electrical guide is associated Standards are presently being developed in the areas of computer security. The draft revision of IAEA Safety Guides is expected to be available in the summer of 2010. It is the IAEA hope that IEEE takes a role in performing a technical review of these draft guides before they are approved.
- 7.5 Work in Progress: P1786 – Human Factors Guide for Applications of Computerized Operating Procedure Systems at Nuclear Power Generating Stations and Other Nuclear Facilities,