



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 12, 2001

(Those on attached list)

On January 17, 2001, the US Nuclear Regulatory Commission (NRC) hosted the fourth coordination meeting with representatives from standards development organizations (SDOs) that develop standards used by the nuclear industry. These meetings are held to foster better communication between the SDOs and the NRC regarding the development and utilization of consensus standards.

Enclosed are the minutes from this meeting. With each meeting, interest in the industry has grown, and we will continue to meet on a semi-annual basis. The next meeting will be held in the late June/early July timeframe. On behalf of the NRC, I want to thank all of the participants for a successful meeting.

Sincerely,

Michael E. Mayfield, Standards Executive
U.S. Nuclear Regulatory Commission

Enclosure: As stated

cc: C. Paperiello, EDO
A. Thadani, RES
S. Collins, NRR
J. Strosnider, NRR
W. Kane, NMSS
P. E. Bird, HR
F. J. Congel, IRO
J. L. Funches, CFO
S. Reiter, A/CIO
H. J. Miller, RA, Region I
L. A. Reyes, RA, Region II
J. E. Dyer, RA, Region III
E. W. Merschoff, RA, Region IV

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Distribution:

Attached List of Meeting Participants

W. Bateman, G. Imbro D. Cool

Signature File (MEM)

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DATE	<u>02/2/01</u>		<u>02/6/01</u>	<u>02/12/01</u>				

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MINUTES - JANUARY 17, 2001, COORDINATION MEETING NRC AND STANDARDS DEVELOPMENT ORGANIZATIONS

Background

On January 17, 2001, the NRC hosted the fourth semi-annual coordination meeting with the standards development organizations (SDOs) that develop standards used by the nuclear industry. These meetings are held to foster better communication between SDOs and the NRC regarding the development and use of standards. The Commission has directed the NRC staff to utilize consensus standards to increase the involvement of licensees and others in the NRC's regulatory development process, consistent with the provisions of Public Law (P.L.) 104-113, the National Technology and Transfer Act of 1995, and Office of Management and Budget (OMB) Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and Conformity Assessment." NRC SECY-99-029¹, "NRC Participation in the Development and Use of Consensus Standards," provides the NRC staff recommendations to the Commission on certain aspects of NRC interactions with standards bodies.

Organizations in Attendance

The organizations attending were the: American Nuclear Society (ANS), American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), Health Physics Society (HPS), Institute of Electrical and Electronics Engineers (IEEE), National Fire Protection Association (NFPA), Society of Nuclear Medicine, Nuclear Energy Institute (NEI), Department of Energy (DOE), National Institute of Standards and Technology (NIST), Nuclear Waste News, Framatome ANP, and the NRC. A list of participants is provided in Attachments 1 and 2.

Presentations and Discussion

Michael Mayfield, NRC Standards Executive, opened the meeting by thanking everyone for attending and for their efforts to advance communication relative to the development and use of industry standards. Mr. Mayfield also emphasized the NRC's commitment to use industry standards.

The first presentation, given by Denwood Ross and Edward Jordan, representing ANS, addressed the proposed development of three new standards: risk-based fire standard for nuclear power reactors; component reliability standard for nuclear power reactors; and non-reactor facility PRA for fuel cycle facilities (see Attachment 3). The proposal was based on the views of ANS standards committee members. Prior to the meeting, RES had assembled comments from the offices and regions on the three proposed standards. Wallace Norris,

¹ SECY stands for the Office of the Secretary which provides executive management services to support the Commission and to implement Commission decisions.

RES, summarized the staff's comments (see Attachment 4, pages 2-5). The following observations apply to the proposed risk-based fire standard for nuclear power reactors:

- o Current practice for fire PRAs is limited to estimating core damage frequency (CDF);
- o Current and future fire protection regulations (10CFR 50.48, GDC 3), however, are not limited to prevention of core damage;
- o The Commission does not endorse an approach that is risk-based (SECY 98-144, "White Paper on Risk-informed and Performance-based Regulation," dated June 22, 1998);
- o The state-of-the-art in fire risk assessment is not adequate to be the sole basis for regulating fire safety in nuclear power plants;
- o RES has a multi-year effort to improve risk assessment techniques; and
- o NFPA-805 is scheduled to be published in April 2001. The NFPA standard specifies what a fire PRA should contain, but does not specify how a fire PRA is to be performed.

The NRC staff suggested that: the ANS standard could provide more detailed guidance on acceptable ways to conduct PRAs to support the NFPA standard; and a risk-based fire standard would also be useful for the fuel facility licensing and inspection process. Tony O'Neill, NFPA representative, will contact the ANS to discuss ongoing NFPA efforts and to coordinate activities in the fire protection arena with ANS.

With regard to the component reliability standard for nuclear power reactors, Alex Marion, NEI, commented that such a standard seems premature and may be unnecessary given the INPO effort to develop a component reliability database. Mr. Marion's comments are consistent with the NRC staff's views. Finally, the NRC staff does not believe that the third proposed standard, a PRA standard for non-reactor facilities, is needed at this time. The NRC staff has already begun work on an acceptable integrated safety analysis (ISA) for fuel cycle facilities. NMSS is working with the industry to establish a database for hardware and human reliability (scheduled for Spring 2001).

The second presentation, given by Gordon Riel, HPS, addressed the organization and scope of HPS; standards related to the nuclear industry published in calendar year 2000; standards related to the nuclear industry under development; and HPS' role in assisting ASTM in administering ISO Technical Committee (TC) 85, "Nuclear Energy," activities (see Attachment 5). The following HPS nuclear standards were published in calendar year 2000:

- o ANSI/HPS N43.4-2000, "Classification of Radioactive Self-Luminous Light Sources;"
- o ANSI/HPS N13.52, "Personnel Neutron Dosimeters (Neutron Energies Less Than 20 MeV);"
- o ANSI/HPS N13.6-1999, "Practice for Occupational Radiation Exposure Records Systems;"
- o ANSI/HPS N13.35-1999, "Standard for the Bottle Manikin Absorption Phantom;" and
- o ANSI/HPS N13.12-1999, "Surface and Volumetric Radioactivity Guides for Materials, Equipment and Facilities to be Released for Uncontrolled Use."

ASTM has requested that HPS assist in managing TC85 activities by administering Subcommittee (SC) 2 of TC85. Most SC 2 activities are within the present scope of HPS, but

areas such as glove boxes and reference radiations will be new areas for HPS. A formal agreement between ASTM and HPS is being developed. HPS will develop and communicate the United States (US) position on ISO draft standards and will ensure appropriate US representation on working groups at TC85/SC2 meetings.

The third presentation was given by Wes Bowers, IEEE (see Attachment 6). Because of the risk-informed theme of the meeting, his presentation focused on IEEE activities related to the reliability and availability of safety-related systems for nuclear power plants. The following are existing standards in these areas:

- 352-1987, "Guide for General Principles of Reliability Analysis of Nuclear Power Generating Station Protection Systems;"
- 577-1976, "Standard Requirements for Reliability Analysis in the Design and Operation of Safety Systems for Nuclear Power Generating Stations;"
- 933-1999, "Guide for Definition of Reliability Program Plans;" and
- 1082-1997, "Guide for Incorporation of Human Reliability Analysis into PRA for Nuclear Power Generating Stations."

With regard to the ANS discussion on the need for component reliability standards for nuclear power reactors, Mr. Bowers noted that 500-1984, "Guide to the Collection and Presentation of Electrical, Electronic, Sensing Component and Mechanical Equipment Reliability Data for Nuclear Power Generating Stations," is still in use, but it has been withdrawn because this standard needs to be updated and the resources to do so were not available.

Development of two new IEEE standards will soon begin. Project P1574, recommended practice for human reliability analysis (HRA), and a standard on qualitative risk management for non-reactor nuclear facilities. The scope of the standard on qualitative risk management for non-reactor nuclear facilities will illustrate techniques to support qualitative risk management of operating nuclear facilities. The techniques will be applicable to facilities containing nuclear materials and other hazards, especially non-power reactor facilities that handle radioactive materials. Mr. Ross, ANS, noted that during discussions with NMSS management, the need for a HRA standard for fuel cycle facilities had been stated.

The fourth presentation, given by Wallace Norris, NRC, addressed the development of new standards. Prior to the meeting, RES had requested that the offices and regions identify their current and anticipated needs for new or revised standards. The following new standards were identified (see Attachment 4, pages 8-11):

- Design, construction, and performance testing of associated equipment of industrial radiography;
- Bioassay sampling and collection techniques during emergencies;
- Standard Guide for the use of access and land use controls (ASTM);
- Standard addressing detection and quantification of radioactive materials that are composed of certain hard to detect isotopes;
- Industry security testing standards for perimeter intrusion detection systems for commercial nuclear facilities; and
- Test Methods for fuel cladding ductility examination.

It was noted that NMSS was recently contacted by ASME to participate in the development of an inservice inspection standard for dry casks, and an NRC representative for the working group has been nominated. In addition, NMSS will support the development of a recently initiated standard for the storage and transport of damaged spent nuclear fuel (ANSI N14.33).

With regard to needed revisions to standards, RES identified the following standard:

- ANSI/ANS-5.1-1994: Equation 13 needs to be corrected; the Uncertainty Method in Section 3.4 and the Simplified Method in Section 3.6 are difficult to follow and an explanation should be provided.

NMSS is assessing the need for a revision to the following standard:

- Standard practice for prediction of the long-term behavior of materials, including waste forms, used in engineered barrier systems (EBS) for geological disposal of high-level radioactive waste (ASTM C-1174). ASTM C-1174 is the only applicable standard in this area for high level waste. A revision may be needed to reflect a risk-informing approach.

The SDO representatives were receptive to the above standards and suggested that the NRC staff initiate discussions with the appropriate organizations. Given the shortage of resources available to the staff and industry for standards related activities, NRC staff stressed that initiation of any of these efforts should be balanced against on-going efforts considered to be high priority (e.g., ASME standard on PRA, upgrade of ANS 57.2, ANS standards for external hazards and low power shutdown).

The feedback to the NRC staff on this meeting was excellent. John Ferguson, ASME, believes that this body can fill a void in the industry because there is no central body to coordinate nuclear standards activities. The next meeting will be held in the late June/early July 2001 time frame. Many of the SDOs routinely interact with the NRC and DOE and have found DOE participation in these meetings to be valuable. The NRC staff was requested to consider holding joint NRC/DOE meetings in the future. The following agenda items were identified for the next meeting: begin the development of a road map for risk-based efforts; consider what standards are needed for new forms of power generation (e.g., pebble bed); and consider coordination with international organizations (what organizations, such as ISO and IEC, and how this can be accomplished). Representatives were requested to submit agenda items in advance of the meeting to allow sufficient review time.

SDO and INTERESTED PARTIES ATTENDANCE LIST
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Attachment 3

ANS Standards

**January 17, 2001
Denwood Ross
Edward Jordan**

Mission from ANS

- **ANS engaged Jordan and Ross on August 28 as independent contractors to market and support ANS Standards Activities**
- **Duties and responsibilities include:**
- **Maintain contact with the ANS standards administrator and SSC chair**
- **Attend the Annual and Winter meetings, including SSC meeting, and possibly some of the Board meetings**
- **Pursue opportunities as directed by SSC chair**
- **Establish and conduct marketing proposals**
- **Participate in development of proposals and in conduct of grant negotiations**
- **Assist in initiation of grant implementation**
- **Maintain client contacts**
- **Identify strategies and opportunities for sales**
- **Identify topics for standards that could meet industry needs**

Initial High Priority Standards Efforts

- **Standards for Fire PSA**
- **Standard for Component Reliability Data**
- **Standard for PSA for Nuclear Facilities (Non-Reactor)**
- **These priorities based on perceptions of ANS Standards workers and Committee Chairs**
- **There is a need to determine customer (i.e., NRC, DOE, NEI) needs and priorities**

ANS Standards Organization and Input

- **The ANS standards effort is managed by the Standards Steering Committee. Jim Mallay, Siemens, is Chair of the SSC**
- **Under this SSC, there are four consensus committees, one of which is the Nuclear Facilities Standards Committee; Don Spellman of ORNL is the chair**
- **The NFSC has eight subcommittees reporting to it.**
- **The SSC also has standing committee N16 reporting to it, and N16 has a subcommittee ANS-8, which is responsible for standards work on Fissionable Material Outside Reactors**

Standard for Fire Protection PSA

■ Risk-Based Standard:

- The current performance-based program standards effort by NFPA and NRC fire protection experts is good and useful but does not go far enough to provide guidelines or express requirements for conduct of a fire PRA;
- The ANS Standards Committee perceives this as the highest priority item among new standards efforts currently under consideration;
- Some industry representatives have also expressed a need for an acceptable methodology;
- There is a concern that a new effort might be perceived as a criticism of the performance-based standard under development, rather than a complimentary standard.

Component Reliability

■ Component Reliability

- **Information on component failure rates is being gathered by industry and is available to NRC.**
- **It is ANS' understanding that no active work is underway to compile these data into a standard with provisions for periodic update.**
- **The ANS Standards Committee suggests that this proposed standard is the second highest priority.**
- **Some industry representatives have indicated interest in a standard that would compile generic values for component reliability that would be acceptable for PRA applications.**
- **It is anticipated that NRC and industry use of regulatory assessment performance indicators would also benefit from further standardization of reliability data.**

Considerations with respect to Facilities PSA

- IAEA has published a consultant report on procedures for conducting a PSA for non-reactor nuclear facilities
- The NRC has issued a plan for using risk information in the Materials and Waste Arenas (FR notice, Nov/2000)
- SECY 99-100 describes the staff plan for using risk-informed regulation in NMSS
- The new Part 70, especially as it relates to the ISA, is aimed at risk-informed, performance-based regulation
- The ISA guidance does not require that likelihood of accident sequences be quantified, but to be binned into “unlikely” or “highly unlikely”. ISA guidance has frequency ranges for unlikely and highly unlikely.

More FC Facilities PSA Factors

- **Recently issued information on Case Studies illustrates the plan for using risk information**
- **These case studies will help in the development of safety goals in the materials and waste arenas**
- **Case study areas include gas chromatographs; fixed gauges; site decommissioning; uranium recovery; radioactive material transportation; part 76 (gaseous enrichment); spent fuel interim storage; static eliminators**

Status as of Jan 17

- **Work is proceeding on formulating a working group to write a standard for a standard for fire PSA**
- **Further definition and justification is needed before a decision is reached on a standard for component reliability**
- **At present NRC sees no need for a standard for Fuel Cycle Facilities PSA; more interface is needed with DOE.**



United States Nuclear Regulatory Commission

COORDINATION MEETING STANDARDS DEVELOPMENT ORGANIZATIONS (SDOs) AND U.S. NUCLEAR REGULATORY COMMISSION

January 17, 2001

Michael E. Mayfield, NRC Standards Executive, MEM2@NRC.GOV

Wallace E. Norris, SDO Coordinator, WEN@NRC.GOV

Attachment 4



United States Nuclear Regulatory Commission

ANS Presentation

- Discussion of the development of 3 proposed standards:**
 - Risk-based Fire Standard (nuclear power reactors)**
 - Component Reliability Standard (nuclear power reactors)**
 - Non-reactor Facility PRA (fuel cycle facilities)**



United States Nuclear Regulatory Commission

NRC Needs – Fire Protection

Observations

Current practice for fire PRAs is limited to estimating CDF only.

- Current and future fire protection regulations (10CFR 50.48, GDC 3) are not limited to prevention of core damage.
- SECY 98-144 – Commission does not endorse an approach that is risk-based.
- State of the art in fire risk assessment is not adequate to be the sole basis for regulating fire safety in nuclear power plants.
 - Office of Research has multi year effort to improve risk assessment techniques.
- NFPA-805 is scheduled to be published in April 2001.
- NRC presently developing rule; industry developing accompanying regulatory guide.



United States Nuclear Regulatory Commission

NRC Needs – Fire Protection (Cont'd)

- NFPA standard specifies what a fire PRA should contain, but does not specify how a fire PRA is to be performed.
- ANS standard could provide more detailed guidance on acceptable ways to conduct PRAs to support the NFPA standard.
- ANS is proposing a Risk-Based Fire Standard for nuclear power reactors. Regional personnel have suggested that such a standard would also be useful for the fuel facility licensing and inspection process.



United States Nuclear Regulatory Commission

NRC Needs – Component Reliability

Observations

- Effort seems premature and may be unnecessary given INPO effort to develop a component reliability data base.

Needs

- Standards may be needed in the materials and waste areas.
 - On-going regulatory activities.
 - May be in a position to discuss at next meeting.



United States Nuclear Regulatory Commission

NRC Needs – Non-Reactor Facility PRA

Observations

- Part 70 requires an integrated safety analysis (ISA) for fuel cycle facilities.
- NRC staff has begun work on an acceptable ISA methodology.
- Database for hardware and human reliability would be more useful than PSA standard for fuel cycle facilities.
- However, it would be very difficult to accomplish this in a time frame to meet staff needs.



United States Nuclear Regulatory Commission

HPS Presentation

- HPS as an ANSI accredited standards organization
- Summary of N13, N42, and N43 authorizations
- Standards presently under development
- ASTM is the US Technical Advisory Group (TAG) administrator for ISO Technical Committee (TC) 85 on Nuclear Energy
 - HPS will administer Subcommittee 2, Radiation Protection, of TC 85



United States Nuclear Regulatory Commission

IEEE Presentation

- Activities in risk assessment and reliability
 - Scope of Nuclear Power Engineering Committee (NPEC) SC-5
 - Existing standards
 - Planned efforts



United States Nuclear Regulatory Commission

NRC Needs – New Standards

- ❑ Design, construction, and performance testing of associated equipment of industrial radiography (HPS N43.9)
 - To permit users and manufacturers to develop associated equipment that would maintain safety without additional effort to comply with a regulatory evaluation and registration process.
- ❑ Bioassay sampling and collection techniques during emergencies (HPS N13)
 - Standard needed to describe available techniques for collecting and analyzing bioassay samples following an incidental intake.
- ❑ Standard Guide for the use of access and land use controls (ASTM)
 - ASTM began effort several years ago. Is it still under development?



United States Nuclear Regulatory Commission

NRC Needs – New Standards (Cont'd)

- ❑ Standard addressing detection and quantification of radioactive materials that are composed of certain hard to detect isotopes.
 - Exposure and effluents from commercial facilities; Standards or NUREGs defining what is “good enough” are not available; as effluents are reduced, these isotopes can become a larger concern.

- ❑ Industry security testing standards for perimeter intrusion detection systems for commercial nuclear facilities.
 - Standards do not exist. Some guidance is provided by NUREGs, but the level of specificity is such that almost everyone has a different method of meeting the NUREG. This results in varying levels of effectiveness. Industry developed standards in this area could result in widely accepted more effective testing.



United States Nuclear Regulatory Commission

NRC Needs – New Standards (Cont'd)

- Test Methods for fuel cladding ductility examination.
 - Evaluation of current and new fuel cladding materials in support of planned higher burnups in the future.

- Inservice Inspection standard for dry casks (ASME)
 - NMSS staff recently contacted by ASME to participate in the development of such a standard; NRC representative identified.

- Storage and transport of damaged spent nuclear fuel (ANSI N14.33)
 - Support the development of this standard which was recently initiated.



United States Nuclear Regulatory Commission

NRC Needs – Revised Standards

- ANSI/ANS-5.1-1994
 - Equation 13 needs to be corrected; Simplified Method in Section 3.6 requires explanation; Uncertainty Method in Section 3.4 requires explanation.

- Standard practice for prediction of the long-term behavior of materials, including waste forms, used in engineered barrier systems (EBS) for geological disposal of high-level radioactive waste (ASTM C-1174)
 - Only standard that exists for high level waste; standard only reflects Part 60, which is no longer applicable to Yucca Mountain.
 - Revision is needed to reflect risk-informing approach of Part 63.



United States Nuclear Regulatory Commission

NRC Needs – On-Going Efforts of High Priority

- ASME standard on PRA
- Upgrade of ANS 57.2 regarding spent fuel design capability
 - Should have at least as high regulatory significance as ANS proposal for fire protection, given the NFPA effort.
- ANS standards for external hazards and low power shutdown



United States Nuclear Regulatory Commission

Status of On-Going SDO Efforts

- Standards under development.

- Needs and emerging issues.



United States Nuclear Regulatory Commission

NRC/SDO Future Interactions

- Issues for next meeting.

- Proposed time frame for next meeting.

Health Physics Society Standards Committee HPSSC

Jack J. Fix, CHP, Chairperson

NRC/SDO 17 Jan 2001

Gordon Riel, PE, CHP, Presenter

the Health Physics Society

- A scientific and professional organization whose members specialize in occupational and environmental radiation safety. The primary purpose of the Society is to support its members in the practice of their profession.
- The Society also promotes public information preparation and dissemination, education and training opportunities, and scientific information exchange.

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What Is HPSSC?

- A. HPSSC reviews and ballots, as the HPS organizational representative, proposed standards, for example:
 - N13.48, “Radiation Protection Terminology.”
 - N43.8: “Classification of Industrial Ionizing Radiation Gauging Devices.”
- The HPSSC also ballots concerning membership and chair roles for N13, N42, and N43 working groups.

N13 Instrumentation: use

- develops and maintains radiological protection standards pertaining to the selection, use, interpretation, application and accreditation of radiological protection instruments.

N42 Instruments: Design and Construction

- N42 develops and maintains standards pertaining to design and construction, design performance criteria, performance testing against design criteria, calibration, and field response testing of radiological protection.

N43 radiation producing equipment

- N43 develops and maintains standards pertaining to radiation protection aspects of radiation producing equipment used in industrial and non-medical research and development activities (excluding nuclear reactors).

HPSSC ANSI Accredited Standards Organization

- ANSI audit performed during November-December 1999. Revised internal operating procedures (IOPs) for N13 and N43, that incorporate HPS responses were prepared to support HPS application to ANSI as an Accredited Standards Organization. Nancy Johnson, HPS Standards Coordinator, has the lead on this effort to coordinate the respective HPSSC, N13 and N43 input.

HPSSC and International Standards Organization (ISO)

- HPS currently receives ISO drafts for review from ANSI, the current US technical advisory group (TAG) administrator for TC85 as a Standards Development Organization (SDO).
- HPS Standards Committee proposed to administrate SC2 of TC85 in collaboration with the HPS Standards Coordinator function provided by the secretariat and with the HPS N13 and N43 standards development organizations.

ISO Technical Committee (TC) 85 on Nuclear Energy

- NIST selected the American Society for Testing and Materials (ASTM) to administer ISO TC85 based in part on their stated intention to collaborate with other SDOs such as the HPS. Verbal communication with ASTM confirms their expectation for the HPS to administer SC2.
- Efforts are underway to provide for an effective assumption of this role by the HPS standards organizations.

HPSSC and ISO SC2

- Administering SC2 will be similar to our present work, but its focus is coordination of reviews by individual technical experts rather than an organizational review.
- This new role for the HPSSC represents an important opportunity for the HPS to increase its recognition in international technical standards.

ISO SC2 Scope

- SC2 activities extend beyond current HPS activities (i.e., design of glove boxes, reference radiations for protection purposes, etc.). However, these areas are relatively few in number and represent areas closely aligned with radiation protection interests. The primary focus of this new role for the HPS is to develop and communicate the US position on ISO draft standards and to ensure appropriate US representation on working groups and at TC85/SC2 meetings.

HPS Organizational Representatives 1.

- American Nuclear Society (ANS)/ Standard Steering Committee, N16, and N17
- American Association of Physicists in Medicine (AAPM)/RSC
- Institute of Electrical and Electronics Engineers (IEEE)/N42 and SCC-28

HPS Organizational Representatives 2.

- Institute of Nuclear Materials Management (INMM)/N14
- Laser Institute of America (LIA)/ LIA Z136
- Lawrence Livermore National Laboratory (LLNL), Respiratory Protection/Z88
- ANSI Z136 committee concerning laser safety

ANSI/HPS Stds. published 1.

- ANSI/HPS N43.4-2000, "Classification of Radioactive Self-Luminous Light Sources," distributed with the January 2001 newsletter.
- ANSI/HPS N13.52, "Personnel Neutron Dosimeters (Neutron Energies Less Than 20 MeV)," distributed with the August 2000 newsletter.

ANSI/HPS Stds. published 2.

- ANSI/HPS N13.6-1999, "Practice for Occupational Radiation Exposure Records Systems," with the April 2000 newsletter
- ANSI/HPS N13.35-1999, "Standard for the Bottle Manikin Absorption Phantom," with the February 2000 newsletter.
- ANSI/HPS N13.12-1999, "Surface and Volumetric Radioactivity Guides for Materials, Equipment and Facilities to be Released for Uncontrolled Use," with the January 2000 newsletter.

HPSSC reviewed and balloted proposed standards 1.

- ANSI/HPS N13.11, Revised American National Standard: “Personnel Dosimetry Performance – Criteria for Testing.”
- N13.39, “Design of Internal Dosimetry Programs.”
- N13.49, Draft Proposed American National Standard: “Performance and Documentation of Radiological Surveys.”

HPSSC reviewed and balloted proposed standards 2.

- N13.53, Preliminary Draft Proposed American National Standard: “Control and Release of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM).”
- N13.59, Working Group membership “Characterization of Land Areas and Structures in Support of Decommissioning.”

HPSSC reviewed and balloted proposed standards 3.

- N43.4, "Classification of Radioactive Self-Luminous Light Sources".
- N43.10, "Safe Design and Use of Panoramic, Wet Source Gamma Irradiators (Category IV)."

HPS Standards Web Page

- The objective of the HPSSC is to provide access on the HPS web page to all supporting information necessary to prepare HPS standards.
- Information prepared to date includes checklists for each major role (i.e., working group chair, section manager, etc.) with hot-links to sample forms, letters, etc.
- More support for is needed. Many weeks are needed to upload information to the web page.

IEEE Activities Concerning Risk Assessment and Reliability

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Attachment 6

Scope of IEEE/PES/NPEEC Subcommittee SC-5

Treatment of all matters relating to the analysis of the reliability and availability of safety-related systems for nuclear power generating stations.

Existing standards

- 352-1987, Guide for General Principles of Reliability Analysis of Nuclear Power Generating Station Protection Systems
- 500-1984, Guide to the Collection and Presentation of Electrical, Electronic, Sensing Component and Mechanical Equipment Reliability Data for Nuclear Power Generating Stations (withdrawn)
- 577-1976, Standard Requirements for Reliability Analysis in the Design and Operation of Safety Systems for Nuclear Power Generating Stations
- 933-1999, Guide for Definition of Reliability Program Plans
- 1082-1997, Guide for Incorporation of Human Reliability Analysis into PRA for Nuclear Power Generating Stations

Planned work

- Project P1574, Recommended practice for Human Reliability Analysis (HRA).
 - Project approved 9/00.
 - Outline prepared.
- Qualitative risk management for non-reactor nuclear facilities.
 - Supports risk management of a non-quantitative nature.
 - Project authorization to be submitted 3/01.

Qualitative risk management for non-reactor nuclear facilities

Scope - This project will illustrate techniques to support qualitative risk management of operating nuclear facilities. The techniques will be applicable to facilities containing nuclear materials and other hazards, especially to non-power reactor facilities that handle radioactive materials. It will use information produced in risk applications to support continued management.

Purpose - Currently no defined, independent standard for using qualitative risk information to manage nuclear facilities. Many nuclear facilities rely on quality assurance of the plant systems structure and components, and selection and training of personnel to manage risk. The proposed guide will provide techniques for qualitatively integrating the results of baseline risk assessments and safety documentation for periodic examination of facilities and evaluation of event experience. This builds on the data and results from quantitative risk studies to avoid misallocation of resources.