

Standards Actions

Technical Standards Program Newsletter

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FEATURED DOE TECHNICAL STANDARDS ACTIVITIES

DOE Technical Standards Cost-Savings and Access Improvement Initiative

By Helen Todosow, Brookhaven National Laboratory

The Department of Energy (DOE) Technical Standards Managers (TSM) are actively exploring ways to save the government and tax payers' money while at the same time significantly improving efficiencies in access and use of voluntary consensus standards (VCS) throughout the DOE complex. Last year, DOE TSMs began a grass-roots initiative to find alternatives to the present patchwork of purchasing and access arrangements used by the DOE community to acquire technical standards; a construct that is very costly, duplicative, and does not always serve users well. This initiative has led to a unique opportunity to collaborate with the National Institute of Standards and Technology (NIST) in a pilot project that aims to create a totally different and improved method for accessing and purchasing standards information.

DOE's current VCS purchase and access model is highly distributed which promotes duplication and increases costs. Each DOE laboratory and facility acquires standards independently in electronic and hard copies. Even with some use of consortium pricing for the purchase of electronic subscriptions, the DOE complex spends an enormous amount on purchasing VCSs and still does not have convenient, point of service access. In addition, DOE's small to mid-sized contractors and sub-contractors have even a greater challenge in getting essential standards information; high purchase costs of hard copies, complicated licensing arrangements, and fees for electronic documents, all impede access to essential information. A recent TSM survey put costs at well over \$10 million annually for the DOE complex, not factoring the purchase of hard copies or charge-backs by subcontractors.

Exchange and collaboration between government and standards issuing organizations is promoted by federal policies that encourage use of VCSs. In fact,

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www.hss.energy.gov/nuclearsafety/ns/techstds/

there are over 9,500 VCSs incorporated by reference in federal rules and regulations,¹ and DOE Directives invoke VCSs. Furthermore, many DOE subject matter experts actively contribute their know-how and expertise to a wide range of American standards development committees. These policies and activities greatly benefit standards developers and DOE's mission execution. Integration and use of VCSs contribute to safe research operations, good business practices, quality products, and global deployment of U.S. standards as the basis for product development and innovation, which enhances our national technological competitiveness.

As the DOE TSM Cost-Savings Standards Initiative evolved, an opportunity to collaborate with NIST in a unique pilot project emerged. The NIST-DOE Pilot Project is actually Phase II of NIST's groundbreaking Standards Pilot Project launched under the direction of Dr. William Billotte, Program Manager, Law Enforcement Standards Office. Dr. Billotte ran a small pilot project for the first responder community in the fall of 2011 that provided first responders web-based access to read-only voluntary consensus standards – for free.² The First Responders Pilot, Phase I, included ASTM International, Institute of Electrical and Electronics Engineers, and National Fire Protection Association standards, along with select Code of Federal Regulations and Department of Defense Military Specifications. DOE TSMs are working with NIST and its contractor, Science Applications International Corporation (SAIC), on Phase II, helping to articulate the DOE community's needs and integrate this need with the first responders. NIST Phase II Pilot Project will use a cloud-based shared platform with secure access for qualified users; many other specifics for the pilot project are still being worked out.

A lot of creative, out of the box thinking is going into the pilot projects. The Phase I First Responder Pilot Project demonstrated how a government agency successfully worked with copyright owners and third party commercial aggregators to further the goals of public-private collaboration to improve the access and affordability of essential resources to a previously underserved customer (the U.S. first responder community's need for standards at the federal, state, and local agency levels). DOE's involvement in Phase II will further demonstrate how creative and persistent efforts between government and industry can create successful solutions for meeting needs, reducing costs to government, while fostering business innovation and U.S. standards industry market growth.

DOE TSMs will be providing updates to this evolving opportunity and will inform the DOE standards community when Phase II is launched for DOE's participation in the Standards Pilot Project.

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¹<http://standards.gov/sibr/query/index.cfm?fuseaction=home.main>

²National Institute of Standards and Technology, Law Enforcement Standards Office,
<http://i2.saiglobal.com/landingpage/nist/>

Domestic and International Nuclear Energy Voluntary Consensus Standards Needs

By Calvin M. Hopper¹, Oak Ridge National Laboratory

Introduction

This article is an abridged version of a report² prepared by the author. That report explains and justifies the bases of voluntary consensus standards needs for nuclear energy, both domestic and international. Those needs include the identification of near- and medium-term subject matter for the standards and the support of subject matter experts (SME) to propose, develop, comment, resolve comments, and approve standards. This article only describes the needs for standards development in specific subject matter areas. The significant needs for the support of SMEs is not included in this article.

Domestic Standards Needs

Domestically, a recently formed (circa 2009) American National Standards Institute (ANSI) organization is the Nuclear Energy Standards Coordination Collaborative (NESCC). Their mission is "... to identify and respond to the current needs of the nuclear industry."³ In that role, NESCC has endeavored to encourage all stakeholders, including appropriate ANSI standards development organization (SDO), to participate in the identification of nuclear industry standards needs. Some of those needs are itemized below:

A recent report⁴ provided to the ANSI NESCC, Concrete Task Group, itemizes the following list of standards subject matter needs:

- High-strength reinforcing steel;
- Concrete radiation shielding;
- Concrete durability;
- Performance-based design;
- Ultra-high performance concretes;
- Temperature loading on concrete;
- Modular construction versus field manufacturing;
- Integrating the concrete strength design provisions of American Concrete Institute (ACI) 349 into the ACI 359/ American Society of Mechanical Engineers Division 2 Concrete Containment Code;
- Updating construction codes;
- Use of lapped splices in regions of low biaxial tension; and
- Integration of updated codes and standards into design software.

The American Society of Mechanical Engineers (ASME) has identified and is doing research on the subjects of:

- Allowable stresses on operating conditions;
- Intermediate heat exchangers;
- Creep and creep-fatigue crack growth on structural discontinuities and welds; and
- Advanced non-destructive evaluation methods for high temperature gas-cooled reactors.

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¹Mr. Hopper is solely responsible for the content of this article that does not necessarily reflect the positions or judgments of the Oak Ridge National Laboratory or the U.S. DOE Office of Nuclear Safety.

²C. M. Hopper, *Domestic and International Nuclear Energy Voluntary Consensus Standards Needs*, ORNL/TM-2012/607, Oak Ridge National Laboratory, Oak Ridge, TN, to be published.

³See http://www.ansi.org/standards_activities/standards_boards_panels/nesc/overview.aspx?menuid=3#Document

⁴See http://publicaa.ansi.org/sites/apdl/Documents/Meetings%20and%20Events/NESCC/NESCC_2011/NESCC_Final_Report_of_the_Concrete_Task_Group.pdf

The American Nuclear Society (ANS) has identified subject matter needs and is focusing standards development efforts in the areas of:

- High temperature gas cooled reactors;
- Small modular reactors;
- Irradiated fuel management;
- Fukushima related failures; and
- Collaboration with ASME on the development of Risk/Probabilistic Risk Assessment standards for levels 1–3.

The American Welding Society (AWS) has identified needs for standards changes to address:

- Avoiding senseless requalification of welding procedures;
- Waveform-based power sources;
- Making repair decisions based on fitness-for-service assessments;
- Phased-array ultrasonic inspection;
- Digital X-ray imaging technology; and
- Visual inspection and personnel certification.

The American Institute of Steel Construction (AISC) has identified potential standards needs for steel plate and concrete modular composite construction analysis requirements and design for:

- Tension;
- Compression;
- Out-of-plane flexure;
- In-plane and out-of-plane shear;
- Combined forces; and
- Impactive and impulsive loads.

International Standards Needs

The International Organization for Standardization (ISO) Technical Committee 85 (TC85) has a business plan⁵ that describes the intended future standards products that are judged to be needed in the “short-term” and “medium-term” for the nuclear industry. They include the following:

- Proposing a process for harmonization of national standards and inclusion of best national practices in international ISO standards;
- Proposing collaboration with relevant international organizations; such as, International Atomic Energy Agency, Organization for Economic Cooperation and Development/Nuclear Energy Agency, and World Nuclear Association, to increase the efficiency of this process and identify areas where national regulations are an obstacle to the harmonization of standards or codes;
- The development of terminology, definitions, units, and symbols for consistency among ISO TC85 standards development;
- Dosimetry for radiation processing;
- Monitoring of radon in the environment and buildings;
- Patient safety in radiotherapy processes;
- Monitoring of nuclear facilities airborne and liquid releases to the environment;
- Waste management, including transportation and disposition, and monitoring solid releases from nuclear facilities;
- Nuclear facilities decontamination, decommissioning, and demolition techniques and service;
- Analysis and measurements in support of safe operation of nuclear power plants and research reactors (RRs), and with decay heat calculations in support of reactor safety;

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⁵http://isotc.iso.org/livelink/livelink/fetch/2000/2122/687806/ISO_TC_085__Nuclear_energy_.pdf?nodeid=689169&vernum=-2

- Standards dealing with the safe and efficient operation of RRs and with services from RRs;
- Standards regarding new technologies of low-enriched uranium fuel for RRs ; and
- Standards related to commercial isotope production in RRs will be considered, with the objectives of improving availability of isotope production for the needs of medicine, research, and industry.

Summary of Standards Needs

Standards are proposed, developed, and produced by SMEs with the support of industry and government organizations. The voluntary consensus standards development process is, as the name implies, a voluntary effort. The problem in today's competitive market, impacted by global economic uncertainty, is that volunteerism is shifting from a collaborative industry and SME effort to nearly a solely SME effort. This shift places a financial and/or time burden on the SMEs to the point that their volunteerism is purposely being withdrawn from the standards development process, both domestically and internationally. More SMEs and younger SMEs are needed to participate in the standards development process. This could be addressed by the following actions:

1. Stimulating industry and government to support SME participation, and reminding them of the benefits of standardization that include, but are not limited to:
 - Simplifying guidance
 - Promoting safety
 - Certifying quality
 - Promoting interchangeability and standardization
 - Providing confidence
 - Controlling costs
 - Developing common specifications (for contracts, etc.)
 - Helping non-informed users
 - Fostering innovation and sharing
 - Helping manage diversity
 - Spreading knowledge
2. Prioritizing and coordinating the development of standards can only be accomplished with the cooperation of industry, government, and interested parties. Clearly, a U.S. national effort is needed to coordinate the standards development process. The formation of the NESCC is a good start in assisting with the coordination of numerous SDOs to address prioritized needs. ISO TC85 has the organizational structure to coordinate the standards development process, but ISO is dependent upon their international members participation.
3. Engaging organizations with a central knowledge of the industry and government players in the nuclear industry. A more comprehensive network of SMEs needs to be developed within the U.S., and internationally. Typically, U.S. regulators (i.e., U.S. Department of Energy and U.S. Nuclear Regulatory Commission) and SDO participants in the ANSI NESCC organization are in the best positions, and have the informational resources about the U.S. nuclear industry, to identify points of contacts who could participate in the standards development processes. That participation would necessarily require some industry or government support.

Many of the standards activities frequently require substantial SME time/effort and occasional travel. ISO TC85 is dependent upon their international members comprehensively engaging the ISO standards process. That won't happen until the international members satisfactorily address the above items.

CHEMICAL SAFETY & LIFE CYCLE MANAGEMENT WORKSHOP THIS MARCH

March 19-21 is the 15th Annual Department of Energy (DOE)/Energy Facilities Contractors Group (EFCOG) Chemical Safety & Life Cycle Management - *Managing Chemicals Safely: Past, Present and Future* in conjunction with the EFCOG Environment, Safety and Health Subcommittee Spring Meeting and the 10 CFR 851 Worker Safety and Health Program. Features include themed sessions on *Managing Chemicals Safely: Lessons Learned from the Past; Current Trends and Best Management Practices;* and *Future Challenges and Opportunities*. In addition, there will be the 10 CFR 851 workshop titled, *Optimizing Worker and Worker Representative Input to Work Planning and Control*. This event is sponsored by: DOE Chemical Safety Topical Committee; EFCOG Environment, Safety and Health's Chemical Safety and Life Cycle Management Subgroup; and DOE Office of Health, Safety and Security.

For more information, please visit: www.hss.doe.gov/HealthSafety/WSHP/chem_safety/ws2013/index.html.

DOE TECHNICAL STANDARDS UPDATES**Department of Energy Technical Standards Updates****DOE TSP Recently Approved Standards**• **DOE Standard (STD)-1066-2012, *Fire Protection***

Contact: Jim Bisker, Office of Health, Safety and Security, Office of Nuclear Facility Safety Programs

Phone: 301-903-6542

• **DOE-STD-1020-2012, *Natural Phenomena Hazards Analysis and Design Criteria for Department of Energy Facilities***

Contact: Gerald Meyers, Office of Health, Safety and Security, Office of Nuclear Facility Safety Programs

Phone: 301-903-3190

DOE New Projects• **P1122-2009REV, DOE Handbook (HDBK)-1122-YR, *Radiological Control Technician Training***

Contact: Pete O'Connell, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-5641

DOE Technical Standards in Revision• **P1162-2003REV, DOE-STD-1162-YR, *Instrumentation and Control Functional Area Qualification Standard***

Contact: David R. Lawson, National Nuclear Security Administration, Office of Safety and Health, Office of Operations and Safety Engineering

Phone: 505-845-5459

DOE Technical Standards Posted in RevCom**Approved Standards**• **P1145-2008REV, DOE-HDBK-1145-YR, *Radiation Safety for Plutonium Facilities***

Contact: Judy Foulke, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-5865

• **P1128-2008REV, DOE STD-1128-YR, *Good Practices for Occupational Radiological Protection in Plutonium Facilities***

Contact: Pete O'Connell, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-3564

• **DOE-HDBK-1209-2012, *Conducting Health Studies at Department of Energy Sites***

Contact: Gerald Petersen, Office of Health, Safety and Security, Office of International Health Studies

Phone: 301-903-2340

• **DOE-STD-1210-2012, *Incidents of Security Concern***

Contact: Sabeena Khanna, Office of Health, Safety and Security, Office of Security Policy

Phone: 201-903-3086

Proposed Cancellations• **DOE-HDBK-1148-2002, *Work Smart Standards User Handbook***• **DOE-STD-6005-2001, *Industrial Hygiene Practices***

Contact: David Weitzman, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-5401

Proposed Reaffirmations• **DOE HDBK-1108-2002 (CH-1) (Reaffirmed 2007), *Radiological Safety Training for Accelerator Facilities***

Contact: Judy Foulke, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-5865

• **DOE-STD-1190-2007, *Illness and Surveillance Program Guidelines***

Contact: Clifton Strader, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-5799

• **DOE-STD-1131-2007, *General Employee Radiological Training***• **DOE-HDBK-1130-2008, *Radiological Worker Training***

Contact: Pete O'Connell, Office of Health, Safety and Security, Office of Worker Safety and Health Policy

Phone: 301-903-5641

Nuclear Safety-Related Standards Activity

By Calvin M. Hopper for the U.S. Department of Energy

This report provides insights into domestic nuclear safety standards development activities with a graded focus on incidental information regarding international standards. Standards that could have current or immediate potential interests to the Department of Energy regarding nuclear facility safety are listed below. Public comment periods for proposed or new standards are typically 30 days.

Industry Standards

American Nuclear Society (ANS)

Proposed Standards

- Board of Standards Review (BSR)/ANS 19.5-201x, *Requirements for Reference Reactor Physics Measurements* (revision of withdrawn American National Standards Institute (ANSI)/ANS 19.5-1995). Provides criteria for the qualification of reference reactor physics measurements obtained from subcritical (including nonmultiplying), critical and experiments performed in any nuclear facility for verification of nuclear design and analysis methods. It also provides criteria for documentation of reference data and review of proposed reference reactor physics data to ensure compliance with this standard. (Resolving ballot comments ended 11/23/12)

Standards Comment Deadlines

- BSR/ANS 6.1.2-201x, *Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection and Shielding Calculations for Nuclear Power Plants* (revision of ANSI/ANS 6.1.2-1999 (R2009)) (11/09/12). Specifies neutron and gamma-ray cross sections and related group-averaged or derived data for the energy range and materials of importance in nuclear radiation protection and shielding calculations for nuclear power plants. (Comment period ended 01/08/13)
- BSR/ANS 58.16-201x, *Safety Categorization and Design Criteria for Non- Reactor Nuclear Facilities* (new standard). Specifies criteria for categorization of structures, systems, and components and specific administrative controls that have a safety function based on radiological and/or chemical dose and exposure levels for the public and workers. The safety categorization leads to codes and standards that are needed for reliable design, construction, and operations commensurate with the safety categorization. (Comment period ended 11/06/12)

American Society of Mechanical Engineers (ASME)

Standards Comment Deadlines

- BSR/ASME Boiler and Pressure Vessel Code (BPVC) Section III-201x, *Rules for Construction of Nuclear Facility Components* (revision of ANSI/ASME BPVC Section III-2010). The rules of this section constitute requirements for the design, construction, stamping, and overpressure protection of items used in nuclear power plants and other nuclear facilities. This section consists of the following three divisions:
 - Division 1.** Metallic vessels, heat exchangers, storage tanks, piping systems, pumps, valves, core support structures, supports, and similar items;
 - Division 2.** Concrete containment vessels; and
 - Division 3.** Metallic containment systems for storage or transportation of spent nuclear fuel and high-level radioactive materials and waste. (Comment period ended 12/03/12)
- BSR/ASME OM-2009, *Operation and Maintenance of Nuclear Power Plants* (revision of ANSI/ASME OM-S/G-2007). Provides requirements for testing and examination of pumps, valves, pressure relief devices and dynamic restraints (snubbers) in lightwater nuclear power plants. (Comment period ended 11/26/12)

Part of the TSP mission is to promote the use of voluntary consensus standards, and to manage DOE efforts to develop and maintain necessary technical standards.

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PROPOSED INDUSTRY STANDARDS

National Fire Protection Association (NFPA)**Standards Comment Deadlines**

- BSR/NFPA 1855-201x, *Standard for Selection, Care, and Maintenance on Protective Ensembles for Technical Rescue Incidents* (new standard). Specifies the minimum selection, care, and maintenance requirements for utility technical rescue protective, rescue and recovery technical rescue, and chemicals, biological agents, and radiological particulate (also known as chemical, biological, radiological, and nuclear technical rescue) ensembles and the individual ensemble elements that include garments, helmets, gloves, footwear, and interface components that are compliant with NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents*. This standard shall also specify requirements for United States Army Reserve (USAR) operation protective ensembles, ensemble elements, clothing, and equipment certified as compliant with the previous edition of NFPA 1951, *Standard on Protective Ensemble for USAR Operations*. (Comment period ended 10/22/12)
- BSR/NFPA 801-201x, *Standard for Fire Protection for Facilities Handling Radioactive Materials* (revision of ANSI/NFPA 801-2008). Addresses fire protection requirements intended to reduce the risk of fires and explosions at facilities handling radioactive materials. These requirements are applicable to all locations where radioactive materials are stored, handled, or used in quantities and under conditions requiring government oversight and/or license (e.g., U.S. Nuclear Regulatory Commission or U.S. Department of Energy) to possess or use these materials, and to all other locations with equal quantities or conditions. This standard shall not apply to commercial power reactors that are covered by NFPA 804, *Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants*, and NFPA 805, *Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants*. (Comment period ended 10/22/12)

Institute of Nuclear Materials Management (INMM)**Standards Comment Deadlines**

- BSR/INMM N14.5-201x, *Radioactive Materials - Leakage Tests on Packages for Shipment* (revision of ANSI N14.5-1997). Specifies methods for demonstrating that Type B packages designed for transport of normal form radioactive material comply with the containment requirements of Title 10 of the Code of Federal Regulations Part 71 (10 CFR Part 71). Describes package release limits, methods for relating package release limits to allowable and reference leakage rates and minimum requirements for leakage rate test procedures. (Comment period ended 12/03/12)

International Organization for Standardization (ISO)**Draft Standards**

- ISO/ASTM International (formerly known as American Society for Testing and Materials (ASTM)) Draft International Standard (DIS) 51275, *Practice for Use of a Radiochromic Film Dosimetry System* (revision of ISO/ASTM 51275:2004). Covers the procedures for handling, testing and using a radiochromic film dosimetry system to measure absorbed dose in materials irradiated by photons or electrons in terms of absorbed dose in water. (Voting ended 12/01/12)
- ISO/ASTM DIS 51818, *Practice for Dosimetry in an Electron Beam Facility for Radiation Processing at Energies Between 80 and 300 KeV* (revision of ISO/ASTM 51818:2009). Applies to dosimetric procedures to determine the performance of low-energy (300 keV or less) single-gap electron-beam radiation processing facilities. (Voting ended 12/01/12)
- ISO/ASTM DIS 51607, *Practice for Use of the Alanine-EPR Dosimetry System* covers materials description, dosimeter preparation, instrumentation, and procedures for using the alanine-EPR dosimetry system for measuring the absorbed dose in the photon and electron irradiation processing of materials. (Voting ended 12/01/12)

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PROPOSED INDUSTRY STANDARDS

- ISO/ASTM DIS 51650, *Practice for Use of a Cellulose Triacetate Dosimetry System* (revision of ISO/ASTM 51650:2005). Covers procedures for using the cellulose triacetate dosimetry system for measuring absorbed dose and dose profile in materials irradiated by electrons and photons in terms of absorbed dose to water. (Voting ended 12/01/12)
- ISO/DIS 21483, *Determination of Solubility in Nitric Acid of Plutonium in Unirradiated Mixed-Oxide Fuel Pellets (U, Pu) O₂* (revision of ISO 12184:1994). Specifies an analytical method for determining the solubility in nitric acid of plutonium in whole pellets of unirradiated mixed oxide fuel (light water reactor fuels). (Voting ends 11/07/13)
- ISO/DIS 15646, *Nuclear Fuel Technology - Re-sintering Test for UO₂, (U, Gd)O₂ and (U,Pu)O₂ Pellets*. Describes a procedure for measuring the densification of UO₂, (U,Gd)O₂ and (U,Pu)O₂ pellets, achieved by heat treatment under defined conditions. (Voting ends 11/11/13)
- ISO/DIS 13166-1, *Water Quality - Uranium Isotopes Part 1: Test Method Using Alpha Spectrometry*. Describes the conditions for the determination of uranium isotopes activity concentration in samples of environmental water (including sea waters) using spectrometry and ²³²U as a yield tracer. (Review ended 12/17/12)

International Electrotechnical Commission (IEC)

Proposed Standards

- Subcommittee Instrumentation and Control of Nuclear Facilities (45A)/893/New Work Item Proposal (NP), IEC, *Nuclear Power Plants - Electrical Systems - Electrical Power System Analyses*. Establishes requirements for analyses of electrical power systems in nuclear power plants. Includes identification of hazards, guidance on analyses to be performed to determine the design bases, and verification that the design meets these bases. Covers both AC and DC power systems and applies to all nuclear power plants. (Voting ended 01/11/13)

- 45A/894/NP, IEC, *Nuclear Power Plants - Instrumentation And Control Systems - Requirements for Coordinating Safety And Cybersecurity*. (Voting ended 01/11/13)

Developing Standards

- 45A/892/First Committee Draft (CD), IEC 62705 Ed.1: *Nuclear Power Plants- Instrumentation and Control Important to Safety - Radiation Monitoring Systems: Characteristics and Lifecycle*. (Voting ended 01/18/13)
- 45A/895/CD, IEC 60744 Ed.2: *Nuclear Power Plants - Instrumentation and Control Important to Safety - Safety Logic Assemblies: Characteristics and Test Methods*. Includes principles of design, construction and testing of safety logic assemblies used in protection systems. Includes provisions for acceptance and in-service testing reliability criteria and protection from external influences. (Voting ended 01/25/13)
- Subcommittee Radiation Protection Instrumentation (45B)/741/Committee Draft with Vote (CDV), IEC 60860 Ed.2: *Radiation Protection Instrumentation - Warning Equipment for Criticality Accidents*. Applies to equipment intended to detect ionizing radiation from, and provide warning of, a criticality accident. Specifies the general characteristics, operating characteristics, electrical, mechanical, safety and environmental characteristics, test procedures and documentation. (Voting ended 01/11/13)

Draft Standards

- 45B/742/CDV, IEC 61577-2 Ed.2: *Radiation Protection Instrumentation - Radon and Radon Decay Product Measuring Instruments - Part 2: Specific Requirements for ²²²Rn and ²²⁰Rn Measuring Instruments*. Specifies the main performance characteristics of instruments intended for measurement of airborne radon volume activity, their specific method of testing, and documentation requirements. Is to be used with IEC 61577-1. (Voting ended 02/08/13)

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REVISED STANDARDS

- 62B/895/CDV, to IEC 60601-1-3 Amendment 1 Ed. 2: *Medical Electrical Equipment - Part 1-3: General Requirements for Basic Safety and Essential Performance - Collateral Standard: Radiation Protection in Diagnostic X-Ray Equipment*. Applies to all X-ray equipment and to subassemblies of such equipment, where radiological images of a human patient are used for diagnosis, planning, or guidance of medical procedures. (Voting ended 01/18/13)

Final Draft Standards

- 45B/751/Final Draft International Standard (FDIS), IEC 62618 Ed.1: *Radiation Protection Instrumentation - Spectroscopy-based Alarming Personal Radiation Detectors for the Detection of Illicit Trafficking of Radioactive Material*. Establishes performance requirements, provides examples of acceptable test methods, and specifies general characteristics, general test conditions, and radiological, environmental, mechanical and electromagnetic characteristics that are used to determine if an instrument meets the requirements of this standard. (Voting ended 01/11/13)
- 45A/897/FDIS, IEC 60987 Amendment 1 Ed.2: *Nuclear Power Plants - Instrumentation and Control Important to Safety - Hardware Design Requirements for computer-based Systems*. Applicable to computer-system hardware for systems of Class 1 and 2 (as defined by IEC 61513) in nuclear power plants. (Voting ended 01/11/13)
- 45A/898/FDIS, IEC 62671 Ed.1: *Nuclear Power Plants - Instrumentation and Control Important to Safety - Selection and Use of Industrial Digital Devices of Limited Functionality*. Addresses certain devices that contain embedded software or electronically-configured digital circuits that have not been produced to other IEC Standards which apply to systems and equipment important to safety in Nuclear Power Plants, but which are candidates for use in nuclear power plants. It provides requirements for the selection and evaluation of such devices where they have dedicated, limited, and specific functionality and limited configurability. (Voting ended 01/11/13)

- 45B/743/FDIS, IEC 62387 Ed.1: *Radiation Protection Instrumentation - Passive Integrating Dosimetry Systems for Personal and Environmental Monitoring of Photon and Beta Radiation*. Applies to dosimetry systems that are capable of evaluating doses in the required quantity and unit (Sv) from readout signals in any quantity and unit. (Voting ended 11/16/12)
- 45B/744/FDIS, IEC 602706 Ed.1: *Radiation Protection Instrumentation - Environmental, Electromagnetic and Mechanical Performance Requirements*. (Voting ended 11/23/12)

International Atomic Energy Agency (IAEA)**Draft Standards Currently Posted for Official Comment by Member States**

- IAEA DS450, *Decommissioning of Facilities, General Safety Requirements Part 6*. Establishes the safety requirements for all aspects of decommissioning from the siting and design of a facility to the termination of the regulatory authorization. (Comment period ends 04/31/13)

Recently Approved Revised Standards**American Nuclear Society (ANS)**

- ANSI/ANS 15.21-2012, *Format and Content for Safety Analysis Reports for Research Reactors* (revision of ANSI/ANS 15.21-1996 (R2006)): 10/5/2012. Identifies specific information and analyses for inclusion in the safety analysis report for research reactors and establishes a uniform format for the report.

American Society of Mechanical Engineers (ASME)

- ANSI/ASME QME-1-2012, *Qualification of Active Mechanical Equipment Used in Nuclear Power Plants* (revision of ANSI/ASME QME-1-2007): 9/17/2012. Describes the requirements and guidelines for qualifying active mechanical equipment used in nuclear power plants.

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Recently Approved New Standards

Health Physics Society (HPS)

- ANSI/HPS N13.56-2012, *Sampling and Monitoring Releases of Airborne Radioactivity in the Workplace of Nuclear Facilities*: 10/22/2012. Provides guidance in establishing air sampling programs and/or for evaluating and improving already established programs.

International Organization for Standardization (ISO)

- ISO 29661:2012, *Reference Radiation Fields for Radiation Protection - Definitions and Fundamental Concepts*: 8/30/12. Defines terms and fundamental concepts for the calibration of dosimeters and equipment used for the radiation protection dosimetry of external radiation, in particular for beta, neutron, and photon radiation. Defines the measurement quantities for radiation protection dosimeters and doserate meters and gives recommendations for establishing these quantities. For individual monitoring, it covers whole body and extremity dosimeters (including those for the skin and the eye lens), and for area monitoring, portable and installed dosimeters. Guidelines are given for the calibration of dosimeters and doserate meters used for individual and area monitoring in reference radiation fields. Recommendations are made for the position of the reference point and the phantom to be used for personal dosimeters.
- ISO/ASTM 51276:2012, *Practice for Use of a Polymethylmethacrylate Dosimetry System*: 10/15/12. Provides recommendations for properly implementing dosimetry in radiation processing. Specifies a practice for using polymethylmethacrylate (PMMA) dosimetry systems to measure absorbed dose in materials irradiated by photons or electrons in terms of absorbed dose to water. The PMMA dosimetry system is classified as a routine dosimetry system and is classified as a Type II dosimeter on the basis of the complex effect of influence quantities.

International Atomic Energy Agency (IAEA)

- IAEA Safety Standards Series - Specific Safety Guide (SSG) No. SSG-22, *Use of a Graded Approach in the*

Application of the Safety Requirements for Research Reactors: 11/16/2012. Provides recommendations on the appropriate manner to comply with the Safety Requirements for research reactors, IAEA Safety Standards Series No. NS-R-4, utilizing a graded approach. It is intended for use by operating organizations, regulatory bodies, and other organizations involved in the design, construction, and operation of research reactors.

- IAEA Safety Standards Series No. SSG-21, *Volcanic Hazards in Site Evaluation for Nuclear Installations*: 10/31/2012. Provides comprehensive and updated guidance for site evaluation in relation to volcanic hazards. Includes recommendations on assessing the volcanic hazards at a nuclear installation site, in order to identify and characterize, in a comprehensive manner, all potentially hazardous phenomena that may be associated with future volcanic events. Describes how some of these volcanic phenomena may affect the acceptability of the selected site, resulting in exclusion of a site or determining the corresponding design basis parameters for the installation. This Safety Guide is applicable to both existing and new sites, and a graded approach is recommended to cater for all types of nuclear installations.
- IAEA Safety Standards Series No. SSG-23, *The Safety Case and Safety Assessment for the Disposal of Radioactive Waste*: 09/28/2012. Provides guidance and recommendations on meeting the safety requirements in respect of the safety case and supporting safety assessment for the disposal of radioactive waste. The safety case and supporting safety assessment provide the basis for demonstration of safety and for licensing of radioactive waste disposal facilities and assist and guide decisions on siting, design and operations. The safety case is also the main basis on which dialogue with interested parties is conducted and on which confidence in the safety of the disposal facility is developed. This Safety Guide is relevant for operating organizations preparing the safety case as well as for the regulatory body responsible for developing the regulations and regulatory guidance that determine the basis and scope of the safety case.

PROGRAM INFORMATION

Upcoming Meetings and Workshops

Joint Energy Facility Contractors Group/Department of Energy Chemical Management 2013 Workshop**When:** March 19-21**Where:** Department of Energy, Washington, DC**Seventh Annual Workshop on Reducing the Risk from Radioactive & Nuclear Materials: *Challenges in Nonproliferation and Arms Control*****When:** April 2-3**Where:** Washington, DC**American Concrete Institute Convention Spring 2013: *Responsibility in Concrete Construction*****When:** April 14-18**Where:** Minneapolis Convention Center, MN**2013 World Conference on Quality & Improvement: *Managing Change*****When:** May 6-8**Where:** Indianapolis, IN**American Nuclear Society 2013 Annual Meeting: *Next Generation Nuclear Energy - Prospects & Challenges*****When:** June 16-20**Where:** Atlanta, GA

TECHNICAL STANDARDS PROGRAM

- **Promotes** the use of voluntary consensus standards at DOE.
- **Manages** and facilitates DOE efforts to develop and maintain necessary technical standards when voluntary consensus standards do not meet DOE needs.
- **Communicates** information on national consensus and departmental technical standards activities to developers and users of technical standards in DOE.

TECHNICAL STANDARDS PROGRAM MISSION

Mission

To enhance DOE's transition to a standards-based culture by providing information, coordinating activities, and promoting the use of consensus standards, and when needed, the development of DOE technical standards.

FOR MORE INFORMATION

To learn more about the DOE Technical Standards Program or to view the *Standards Actions* Newsletters, go to:

www.hss.energy.gov/nuclearsafety/ns/techstds.

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