April 2011

Standards Actions

Technical Standards Program Newsletter

U.S. DEPARTMENT OF ENERGY | OFFICE OF NUCLEAR SAFETY, QUALITY ASSURANCE AND ENVIRONMENT

HSS

INSIDE THIS ISSUE

FEATURED DOE TECHNICAL STANDARDS ACTIVITIES

DOE Standard 3009 Revision

The Office of Nuclear Safety Policy and Assistance (HS-21), within the Office of Health, Safety and Security (HSS), conducted workshops in January and March to support a major revision of Department of Energy (DOE) Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*. Although this standard has been amended several times, a complete revision to the standard had not been conducted since 1994.

The revision is focused on the following criteria and guidance:

- Hazard Assessment Process, Worker Safety Controls, and Defense in Depth;
- Accident Analysis and Public Safety Controls;
- Safety Management Programs and Definitions;
- Criticality Controls;
- New Facilities; and
- Standard 3009 Methodology for Compliance with 10 CFR 830.

This revision will also address issues raised in Defense Nuclear Facilities Safety Board Recommendation 2010-1, *Safety Analysis Requirements for Defining Adequate Protection for the Public and the Workers*. The draft is expected to be posted in RevCom in May 2011.

Contact: Sam Rosenbloom, HSS, HS-21
Phone: 301-903-5749

DOE Standard 1066 Revision

DOE Standard 1066, *Fire Protection and Emergency Services Program and Design Criteria*, was submitted into the technical standards formal review process this month. The standard has been significantly modified since its issuance in 1997, and will become a single source of DOE specific fire protection guidance supporting the implementation of DOE Order 420.1B, *Facility Safety*, and its upcoming revision, DOE Order 420.1C.

(Continued on next page)

The new standard incorporates criteria and guidance from three other DOE Directives documents:

- DOE Standard 1088-95, *Fire Protection for Relocatable Structures*;
- DOE Guide 420.1-3, *Implementation Guide for DOE Fire Protection and Emergency Services Programs for Use with DOE Order 420.1B, Facility Safety*; and
- DOE Guide 450-1.4, *Implementation Guide Wildland Fire Management Program for Use with DOE Order 450.1, Environmental Protection Program*.

Additionally, an appendix section has been added to incorporate new criteria and guidance related to the design and operation of fire protection systems used in safety class and safety significant applications that were developed as part of DOE's response to Defense Nuclear Facilities Safety Board Recommendation 2008-1, *Safety Classification of Fire Protection Systems*. Once published, this standard will provide a single, integrated framework by which the Department can achieve a safer, more efficient fire protection program.

Contact: Jim Bisker, HSS, HS-21
Phone: 301-903-6542

DOE Technical Standards Updates

New Projects and DOE Technical Standards in Revision

DOE New Projects:

- **SANS-0011, *Incidents of Security Concern Technical Standard***

  Contact: Sabeena Khanna, HSS, HS-71
  Phone: 301-903-4681

- **SAFT-0134, *Explosives Safety***

  Contact: Gerald Meyers, HSS, HS-11
  Phone: 301-903-3190

- **OPER-007, *Operations Assessment Field Handbook***

  Contact: Mike Childers, Pantex Site Office
  Phone: 806-477-6740

- **RAND-0001, *Reporting of Radioactive Sealed Sources Program***

  Contact: Melanie May, HSS, HS-81
  Phone: 301-903-1566

- **SAFT-0135, *Occurrence Reporting Causal Analysis Guide***

  Contact: Phil Wilhelm, HSS, HS-32
  Phone: 301-903-5678

DOE Technical Standards in Revision:

- **SAFT-0133, DOE Standard 3009, *Preparation Guide for U. S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analysis***

  Contact: Sam Rosenbloom, HSS, HS-21
  Phone: 301-903-5749

DOE Technical Standards Posted in RevCom for TSP

- **DOE-STD-1156-2011, *Environmental Compliance Functional Area Qualification Standard***

  Contact: Steven Black, NNSA Service Center
  Phone: 505-845-6885

- **DOE-STD-1066, *Fire Protection***

  Contact: Jim Bisker, HSS, HS-21
  Phone: 301-903-6542

DOE Technical Standards in Reaffirmation

None for February or March.

DOE Technical Standards Change Notices

None for February or March.

DOE Technical Standards Published

- **DOE-STD-1095-2011, *Department of Energy Laboratory Accreditation Program for External Dosimetry***

  Contact: Steven Zobel, HSS, HS-31
  Phone: 301-903-2615

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 DOE regarding nuclear facility safety are listed below. Public comment periods for proposed or new standards are typically 30 days.

Proposed Industry Standards

American Nuclear Society (ANS)

- ANS 58.14-201x, *Safety and Pressure Integrity Classification Criteria for Light Water Reactors.* Provides criteria for classification of structures, systems, and components for light water reactors. The standard addresses criteria for classification from both a safety and pressure retaining perspective for licensing design basis events.
- ANS 3.8.1-201x, *Properties of Radiological Emergency Response Functions and Organizations for Nuclear Facilities.* Establishes properties for identifying emergency response functions and subsequently developing an overall pre-planned emergency response organization for nuclear facilities. The properties address:
  - basic emergency response functions;
  - emergency response support functions;
  - emergency response organization; and
  - personnel responsibilities.
- ANS 3.8.2-201x, *Properties of Functional and Physical Characteristics of Radiological Emergency Response Facilities at Nuclear Facilities.* Establishes functional and physical properties for facilities needed to provide an adequate overall emergency response. The properties address:
  - emergency response facilities;
  - facility features and requirements; and
  - parameters needed to provide a basis for determining an adequate inventory of equipment and supplies for anticipated emergency responses.
- ANS 3.8.3-201x, *Properties of Radiological Emergency Response Plans and Implementing Procedures and Maintaining Emergency Response Capability for Nuclear Facilities.* Establishes properties for developing a radiological emergency response plan, emergency plan implementing procedures, and emergency plan administrative procedures for nuclear facilities. Properties include exercises, drills, surveillance, and training.
- ANS 3.8.6-201x, *Properties of the Conduct of Offsite Radiological Assessment for Emergency Response and Emergency Radiological Field Monitoring, Sampling and Analysis for Nuclear Facilities* (new standard). Establishes properties for consequence assessment properties, as well as field monitoring, and sampling and analysis strategy during all phases of and after an emergency to be used for Protective Action Recommendations for nuclear facilities.
- ANS 3.8.7-201x, *Properties of Planning, Development, Conduct, and Evaluation of Drills and Exercises for Emergency Preparedness at Nuclear Facilities.* Establishes properties for the planning, development, conduct and evaluation of radiological emergency response drills and exercises in support of emergency preparedness at nuclear facilities. In addition, this standard will incorporate the requirements for the conduct of Hostile Action-Based Emergency Response drills.
- ANS 5.4-201x, *Method for Calculating the Fractional Release of Volatile Fission Products from Oxide Fuel.* Provides an analytical method for calculating the release of volatile fission products from uranium dioxide fuel pellets during normal reactor operation. When used with nuclide yields, this method will give the release-to-birth ratio, R/B, or the so-called "gap release," which is the inventory of volatile radioactive fission products that could be available for release from the fuel rod if the cladding were breached.
- ANS 2.3-201x, *Estimating Tornado, Hurricane, and Extreme Straight Line Wind Characteristics at Nuclear Facility Sites.* Defines site phenomena caused by (a) extreme straight winds, (b) hurricanes, and (c) tornadoes in various geographic regions of the U.S. These phenomena are used for the design of nuclear facilities.

(Continued on next page)

- ANS 2.17-201x, *Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Plants.* Establishes the requirements for evaluating the occurrence and movement of radionuclides in the subsurface resulting from abnormal radionuclide releases at commercial nuclear power plants.

American Society of Mechanical Engineers (ASME)

- ASME 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.
- ASME BPVC Section XI-201x, *Rules for Inservice Inspection of Nuclear Power Plant Components* (revision of ANSI/ASME BPVC Section XI-2010). Provides requirements for in-service inspection and testing of light-watercooled nuclear power plants. The requirements identify the areas subject to inspection, responsibilities, provisions for accessibility and inspectability, examination methods and procedures, personnel qualifications, frequency of inspection, record keeping and report requirements, procedures for evaluation of inspection results and subsequent disposition of results of evaluations, and repair/replacement activity requirements, including procurement, design, welding, brazing, defect removal, fabrication, installation, examination, and pressure testing.

Health Physics Society (HPS)

- N43.14-201x, *Radiation Safety for Active Interrogation Systems for Security Screening of Cargo, Energies Up to 100 MeV* (new standard). Establishes radiation safety guidelines, policies, and procedures for the safe uses of Active Interrogation Systems so that the operators of these systems and members of the general public, who are in the vicinity of these systems, are protected from unnecessary exposure to neutron (and resulting gamma) radiation and bremsstrahlung (high energy photons). The intent is to ensure that the exposures are well within the regulatory limits.

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE C37.105-201x, *Standard for Qualifying Class 1E Protective Relays and Auxiliaries for Nuclear Power Generating Stations.* Covers qualification of Class 1E Protective Relays and Auxiliaries to be used outside the primary containment in the Nuclear Power Generating Stations. Protective relays and auxiliaries located inside the primary containment in a nuclear power generating station present special conditions beyond the scope of this document.
- IEEE 497-201x, *Standard Criteria for Accident Monitoring Instrumentation for Nuclear Power Generating Stations* (revision of ANSI/IEEE 497-2002 (R2008), and IEEE 497-2002/Cor1-2007). Contains the functional and design criteria for accident-monitoring instrumentation for nuclear power generating stations. This standard is intended for new plant designs and for operating nuclear power generating stations desiring to perform design modifications.
- IEEE 1082-1997 (R201x), *Guide for Incorporating Human Action Reliability Analysis for Nuclear Power Generating Stations* (reaffirmation of ANSI/IEEE 1082-1997 (R2003)).
- IEEE 692-201x, *Standard Criteria for Security System for Nuclear Power Generating Stations* (revision of ANSI/IEEE 692-1997 (R2005)). Provides criteria for the design, testing, and maintenance of security system equipment for nuclear power generating stations. Such equipment includes permanently or temporarily installed systems, subsystems, and components used by the security force for physical protection of the station against security threats. This standard includes equipment for security-related detection, assessment, surveillance, access control, communication, and data acquisition.

(Continued on next page)

National Fire Protection Association (NFPA)

- NFPA 1951-201x, *Standard on Protective Ensembles for Technical Rescue Incidents* (revision of ANSI/NFPA 1951-2006). Specifies the minimum design, performance, testing, and certification requirements for utility technical rescue; rescue and recovery technical rescue; and chemicals, biological agents, and radiological particulate [also known as chemical, biological, radiological, and nuclear (CBRN) technical rescue] protective ensembles for use by emergency services personnel during technical rescue incidents. This standard also specifies the minimum requirements for the various elements of the utility technical rescue ensembles and the rescue and recovery technical rescue protective ensembles, including garments, helmets, gloves, footwear, interface, and eye-protection and face-protection devices.

International Electrotechnical Commission (IEC)

- FDIS, IEC 62598 Ed.1: *Nuclear Instrumentation - Constructional Requirements and Classification of Radiometric Gauges.*

New and Revised Standards

ASTM (ASTM International)

- NSI/ASTM E2116-2010, *Practice for Dosimetry for a Self-Contained Dry-Storage Gamma-Ray Irradiator* (revision of ANSI/ASTM E2116-2002): 12/15/2010.

Institute of Nuclear Materials Management (INMM)

- INMM N15.36-2010, *Methods of Nuclear Material Control - Measurement Control Program Nondestructive Assay Measurement Control and Assurance.*

International Organization for Standardization (ISO) TC85, *Nuclear Energy*

- ISO 28218:2010, *Radiation Protection - Performance Criteria for Radiobioassay.*

Standards Development Organizations

Points of Contact Information

Patricia Schroeder
American Nuclear Society
555 North Kensington Avenue
La Grange Park, IL 60525
Ph: (708) 579-8269 Fax: (708) 352-6464
E-Mail: pschroeder@ans.org

William Berger
American Society of Mechanical Engineers
Three Park Avenue 20th Floor
New York, NY 10016
Ph: (212) 591-8520 Fax: (212) 591-8501
E-Mail: BergerW@asmestaff.org

Dan Smith
ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Ph: (610) 832-9727 Fax: (610) 832-9666
E-Mail: dsmith@astm.org

Nancy Johnson
Health Physics Society
1313 Dolley Madison Blvd. Suite 402
McLean, VA 22101
Ph: (703) 790-1745 Fax: (703) 790-2672
E-Mail: njohnson@burkinc.com

International Electrotechnical Commission
3, rue de Varembé, P.O. Box 131
CH - 1211 GENEVA 20, Switzerland
Ph: +41 22 919 02 11
Fax: +41 22 919 03 00
E-mail: IEC Central Office

Christian Dubay
National Fire Protection Association
One Batterymarch Park
Quincy, MA 02169-7471
Ph: (617) 770-3000 Fax: (617) 770-0700
E-Mail: cdubay@nfpa.org

David Ringle
Institute of Electrical and Electronics Engineers
445 Hoes Lane
Piscataway, NJ 08854-4141
Ph: (732) 562-3806 Fax: (732) 875-0524
E-Mail: d.ringle@ieee.org

Richard Rawl (N14)
Institute of Nuclear Materials Management
Oak Ridge National Laboratory P.O. Box 2008, MS-6472
Oak Ridge, TN 37831-6472
Ph: (865) 574-6461 Fax: (865) 574-3431
E-Mail: rawlrr@ornl.gov

Carrie Mathews (N15)
Institute of Nuclear Materials Management
Pacific Northwest National Laboratory
P.O. Box 999, MS- K8-46
Richland, WA 99352
Ph: (509) 375-6783 Fax: (509) 372-4316
E-Mail: carrie.mathews@pnl.gov

Eric Balcaen
International Organization for Standardization, ISO TC85, *Nuclear energy*
Association française de normalisation
11 rue Francis de Pressensé
FR-93571 La Plaine Saint-Denis Cedex
Ph: +33 1 41 62 80 00
Fax: +33 1 49 17 90 00
E-mail: eric.balcaen@afnor.org

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

In support of the Department's Standards Program and in partnership with all stakeholders, the mission is 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.

Publishing Organization:

Office of Nuclear Safety Policy and Assistance

Office of Nuclear Safety, Quality Assurance and Environment

Office of Health, Safety and Security

Department of Energy
1000 Independence Avenue
Washington, D.C. 20585-0270

Editor-in-Chief:
Jeff Feit: 301-903-0471
jeffrey.feit@hq.doe.gov

General/Compiling Editor:
Kathy Knight: 301-903-4439
kathy.knight@hq.doe.gov

Questions or Comments?

Please contact Jeff Feit, HS-21, Manager, DOE Technical Standards Program Office, 301-903-0471 or jeffrey.feit@hq.doe.gov.

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/*

Standards Actions is published bimonthly by the Office of Nuclear Safety Policy and Assistance; Office of Nuclear Safety, Quality Assurance and Environment; Office of Health, Safety and Security; Department of Energy, 1000 Independence Avenue, Washington, DC 20585-0270