July 23, 2008

MEMORANDUM TO: Brian W. Sheron, Director
Office of Nuclear Regulatory Research

THRU: Jennifer L. Uhle, Standards Executive ***/RA/***
Office of Nuclear Regulatory Research

FROM: Carol E. Moyer, Materials Engineer ***/RA/***
Division of Engineering
Office of Nuclear Regulatory Research

C.E. Carpenter, Group Lead ***/RA/***
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Office of Nuclear Regulatory Research

SUBJECT: SUMMARY OF JULY 9, 2008, MEETING WITH STANDARDS DEVELOPMENT ORGANIZATIONS IN SUPPORT OF NUCLEAR STANDARDS COORDINATION

On July 9, 2008, staff of the U.S. Nuclear Regulatory Commission (NRC), along with staff from the U.S. Department of Energy (DOE) and the National Institute of Standards and Technology (NIST), held a public meeting at the NIST campus with representatives of several standards developing organizations (SDOs) and nuclear industry representatives to discuss priorities for developing nuclear-related codes and standards that may be endorsed in lieu of developing Government-unique standards (see June 18, 2008, meeting notice, ML081690286). The discussion focused on identifying and addressing gaps and overlapping efforts among SDOs. The list of meeting attendees are included as Enclosure 1, the action items resulting from this meeting are included as Enclosure 2, and the presentation materials are included in Enclosures 3-7.

The NRC staff made a presentation (Enclosure 3) discussing how the agency uses codes and standards in its regulatory process, including incorporation by reference into the regulations. An example is incorporation by reference of portions of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, the ASME Code for Operation and Maintenance of Nuclear Power Plants, and IEEE Standards into Section 50.55a to Title 10 of the *Code of Federal Regulations* (10 CFR 50.55a). In addition, the NRC references various codes and standards in assorted Regulatory Guides (RGs) (*see* http://www.nrc.gov/reading-rm/doc-collections/reg-guides/). It should be noted that the NRC is presently reviewing and prioritizing updates to its RGs based on anticipated needs in order to ensure complete, accurate, and current guidance; therefore, efficiencies in the regulatory process may be realized if SDOs were to determine whether the various codes and standards referenced in these RGs require revision, and to revise them as necessary. Further, if the staff had previously included exceptions to the codes and standards referenced in these RGs, it may be appropriate for the SDOs to review the staff's exceptions and consider revisions. In addition, to support the regulatory process associated with new construction and to maintain an appropriate U.S.

influence in the international nuclear arena, the staff is working closely with international regulators, vendors, the International Atomic Energy Agency (IAEA), and the Nuclear Energy Agency (NEA). As such, the NRC is working with these groups to identify and understand the differences between domestic and international codes and standards and to facilitate their resolutions, as appropriate; this effort can be enhanced with the involvement of SDOs. Finally, the staff suggested it may be beneficial for the various SDOs to consider expanded collaborative efforts to develop joint standards, similar to the collaboration between the American Nuclear Society (ANS) and ASME on Probabilistic Risk Assessment (PRA), to avoid duplication of effort.

The DOE staff discussed the DOE perspective on supporting the Administration's encouragement of new nuclear power plants, both for generating electricity (e.g., Next Generation Nuclear Plant, NGNP; Global Nuclear Energy Program, GNEP), and to provide process heat for industrial uses like coal-to-liquid and biofuels production. These activities will most likely require revisions to existing codes and standards and development of new ones. As part of GNEP, DOE is aiming to support the development of international codes and standards, and the harmonization of existing domestic codes and standards with international ones.

In support of the construction of new nuclear plants domestically, DOE contracted a review of existing codes and standards to determine if there are any revisions or updates needed; the presentation is provided as Enclosure 4, and summarizes the preliminary findings of this review. While the findings do not represent a safety concern for existing plants, resolution of the issues may provide a means of making the regulatory process associated with construction more efficient. As the work is not yet complete, the DOE has requested that the SDOs provide comments on the draft report, which they expect to finalize in the next several weeks.

Among the issues raised by the SDOs raised are:

- The Chair of the Nuclear Technical Advisory Group (NTAG), representing the US participation in the International Organization for Standards (ISO; http://www.iso.org/iso/home.htm) made a presentation regarding TC-85, "*Nuclear Energy*". NTAG, develops US technical positions for ISO on nuclear issues. He discussed efforts regarding harmonization of essential requirements for existing or future codes and standards. Further, ISO is offering the various SDOs its services in creating this international harmonization, and has already achieved some success (e.g., irradiated food processing, where ANS standards are utilized world-wide). ISO encourages the U.S. to consider participation in the development of harmonized standards, especially in areas of new and advanced reactors. In order to facilitate discussion and to evaluate the value of more active involvement in the ISO process, it was proposed that a steering committee be formed.

- The American Nuclear Society (ANS) representative discussed the role of the American National Standards Institute (ANSI; http://www.ansi.org/) (ANSI) in developing codes and standards, as well as ANSI's stated concern that the U.S.'s lack of involvement in development of international codes and standards represents an economic detriment to our domestic industries.

It was agreed that ANSI should be contacted to inquire if they want to take the lead on a proposed SDO steering committee, which will be focused on identifying and addressing gaps and overlapping efforts among SDOs, along with working closely with the ANSI technical advisory groups (TAGs) for all nuclear activities (i.e., power reactors, fuel cycle facilities, and nuclear waste), and in seeking funding from the Federal government and the domestic nuclear industry to accomplish this harmonization.

- The representative from the American Nuclear Society (ANS; http://www.ans.org/) also discussed how the ANS's Standards Board is updating its various standards to reflect a more risk-informed approach, and is focusing on future non light-water reactor designs (i.e., ANS 53.1, Design Criteria for Gas Reactors). In addition, ANS is working with other SDOs, and is ensuring that it maintains ties with the Nuclear Energy Institute (NEI) in order to better focus on industry needs, both in the present and the future.

- The IEEE[1] (http://www.ieee.org/) representative discussed how the IEEE is already an international organization which has developed the largest number of standards on electrical and computer technology, which are in use world-wide. In addition, the IEEE incorporates human factors and cyber-security disciplines, and is looking into new technologies (i.e., fiber optics). IEEE incorporates ISO practices into its codes and standards and technical positions. IEEE is interested in working with other SDOs to facilitate better communication and harmonization of the various codes and standards.

- The representative from the American Society of Mechanical Engineers (ASME, http://www.asme.org/) is interested in working with NRC to ensure endorsement of their codes and standards, especially Section III (nuclear construction) and IX (inspection), as well as design codes, nuclear quality codes (NQA-1), and nuclear accreditation (e.g., N-stamps). In addition, ASME is seeking international participation in changing/updating codes and standards. In support of this, ASME has formed a limited liability corporation to facilitate input to the consensus committees, which will allow for more timely development and review of standards and codes. ASME is looking to implement several enhancements, including obtaining NRC endorsement of NQA-1-2008, updating Section III quality assurance general requirements, and utilizing ISO processes for nuclear components.

[1]The IEEE name was originally an acronym for the Institute of Electrical and Electronics Engineers, Inc. Today, the organization's scope of interest has expanded into so many related fields, that it is simply referred to by the letters I-E-E-E (pronounced Eye-triple-E).

The meeting concluded with a short session dedicated to a general discussion, which included a review of the various areas covered during the meeting, as well as the resulting action items. Of particular note was the consensus that a steering committee be formed that would help to prioritize the needs and opportunities for collaborative work on new and revised codes and standards. It was also agreed upon that a follow-up meeting will be conducted within the next six to twelve months.

Enclosures:
As stated

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Enclosures:
As stated

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DATE	07/23/08	07/23/08	07/23/08

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Attendees List – SDO Meeting, July 9, 2008, NIST – Gaithersburg, MD

NAME	ORGINIZATION
Satish Aggarwal	IEEE/NRC
Matthew Ahlers	Energetics Incorporated
Richard Black	U.S. Department of Energy
Randy Bramlett	Nuclear Energy Institute
Stephanie Bush-Goddard	U.S. Nuclear Regulatory Commission
Peter Buzzard	NCSLI/PSEG
George Campbell	ISO TC85
Gene Carpenter	U.S. Nuclear Regulatory Commission
Ryan L. Crane	ASME
Timothy Dennis	Consultant
Bryan A. Erler	ASME
Jeffrey Feit	U.S. Department of Energy
Judy Foulke	U.S. Department of Energy
Mary Haughey	U.S. Department of Energy
William Hinton	NCSLI/ FP&L Energy
Prasad Kadambi	American Nuclear Society/ NRC
Leslie Kass	Nuclear Energy Institute
Joe Koury	ASTM International
Robert Loesch	U.S. Department of Energy
Barry Marcus	U.S. Nuclear Regulatory Commission
Rosendo Martinez	Energetics Incorporated
Roger J. Mattson, PhD	DOE Consultant

Enclosure 1

Carol Moyer	U.S. Nuclear Regulatory Commission
Cecil V. Parks	Oak Ridge National Laboratory
Lynne Preston	U.S. Department of Energy
Tawfik Raby	NIST
Richard A. Reister	U.S. Department of Energy
Burton Rothleder	U.S. Department of Energy
Betty Sandoval	NIST
Stephen Seltzer	NIST
Jack Spanner, Jr.	Electric Power Research Institute
Donald J. Spellman	Oak Ridge National Laboratory
Roger Stoller	Oak Ridge National Laboratory
David Terao	U.S. Nuclear Regulatory Commission
Ambler Thompson	NIST
Jennifer Uhle	U.S. Nuclear Regulatory Commission
Michael Unterweger	NIST
Robert Westfakk	Oak Ridge National Laboratory
Peter Hastings	Duke Energy