

# Standards Board Annual Meeting Report to the ANS Board of Directors

from  
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## **Standards Board Comments on “Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors”**

In October 2024, the U.S. Nuclear Regulatory Commission (NRC) solicited comments on the “Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors” proposed rule (10 CFR Part 53, also known as “Part 53”) [NRC-2019-0062]. Part 53 would revise the NRC’s regulations by adding a risk-informed, performance-based, and technology-inclusive regulatory framework for commercial nuclear plants in response to the Nuclear Energy Innovation and Modernization Act. The Standards Board submitted comments in response to two separate items in Part 53. Exception was taken to wording in the proposed rule that does not follow the promulgated voluntary consensus standard ANSI/ANS-8.1-2014 (R2023), *Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors*. Additionally, clarification was requested on an apparent new requirement for voluntary consensus standards to have the approval/endorsement of the NRC prior to use.

The [Standards Board’s full response](#) has been posted to the ANS website.

## **Revised Standards Committee Strategic Plan Issued**

The [Standards Board](#) approved the [ANS Standards Committee Strategic Plan for January 2025 through January 2030](#). The revised Strategic Plan focuses on current themes, redirected industry activities such as the [Electric Power Research Institute \(EPRI\)/Nuclear Energy Institute \(NEI\) North American Advanced Reactor Roadmap](#) and initiatives of the [Advanced Reactor Codes and Standards Collaborative](#), the need for integration and innovation in thought and activities among stakeholders, and other new initiatives. The revised Strategic Plan also streamlines goals and initiatives to reduce redundancy. The goals for the Standards Committee for 2025 through 2030 include the following:

- Goal #1: Align ANS Standards Development Priorities with Industry Needs in the USA and Internationally
- Goal #2: Develop and Maintain High-Quality Standards
- Goal #3: Expand ANS Awareness and External Outreach
- Goal #4: Ensure Sustainability of Working Groups, Subcommittees, and Consensus Committees

## **RP3C Community of Practice’s Fifth Anniversary**

The Community of Practice (CoP) webinar series, hosted by the Standards Board’s Risk-informed, Performance-based Principles and Policies Committee ([RP3C](#)), celebrated its fifth anniversary. Since February 2020, over 50 CoP recordings have received nearly 25,000 views, making them among the most highly viewed content on this subject. Among those are several standout CoPs with over 2,000 views each, all focused on high-profile advanced reactor projects: [Kyle Metzroth’s presentation](#) on X-energy’s implementation of NEI 18-04, “Risk-Informed Performance-Based Technology Guidance for Non-Light Water Reactors,” for the Xe-100 reactor; [Brian Johnson](#) on TerraPower’s structures, systems, and components safety classification using NEI 18-04 for Sodium; [Dennis Henneke](#) on GE

Hitachi's safety assessment of the BWRX-300 reactor; and [Brandon Chisholm](#) of Southern Company on the safety case development for TerraPower's Molten Chloride Reactor Experiment.

All CoPs are hosted on the [RP3C CoP page](#) on ANS's website along with the presentation slides. CoPs have been broken down on the RP3C page by six major topics for your convenient reference. Another ANS-supported library of information is the [Nuclear Science and Technology Open Research \(NSTOR\) platform](#), which hosts [the RP3C CoP collection](#) containing the slides for a majority of the CoP sessions with a dedicated DOI for each presentation.

RP3C looks to grow the CoP's audience and increase its impact over the next five years. Those interested in receiving announcements of upcoming CoPs may contact [standards@ans.org](mailto:standards@ans.org).

### **Engagement with the U.S. Nuclear Regulatory Commission (NRC)**

Standards Board leadership has initiated quarterly meetings with the NRC Standards Executive and staff to provide an open opportunity for discussion. Meetings focus on new standards activities, initiatives, and soon to be issued standards. A topic recently discussed is the NRC endorsement process and vehicles for endorsement and/or approval. Recent meetings were held December 10, 2024, and March 11, 2025. At the request of the NRC, a formal list of ANS priority standards was submitted on March 31, 2025. The next ANS/NRC meeting is scheduled for June 26, 2025.

### **Update on the Advanced Reactor Codes & Standards Collaborative**

The [Advanced Reactor Codes and Standards Collaborative \(ARCSC\)](#) was established in 2022 to ensure the development, alignment and timely availability of U.S., Canadian and international codes and standards needed to support large-scale advanced reactor deployment. Founding members along with ANS include the American Society of Mechanical Engineers (ASME), the CSA Group, the Electric Power Research Institute (EPRI), and the Nuclear Energy Institute (NEI). ANS continues to hold a co-chair and secretary role as part of the ARCSC leadership team. Membership on the Collaborative includes representatives from standards development organizations, industry organizations, and federal agencies including AISC, ANS, ASME, ASCE, CSA Group, IEEE, IEC, ISA, DOE, EPRI, NEI, NRC, ISO, and WNA. ARCSC has held three public workshops to date and is planning for a fourth workshop later this year. The Collaborative aligns actions with the [NEI/EPRI North American Advanced Reactor Roadmap \(NAARR\)](#). Consideration is being given to new initiatives to support industry's need for risk-informed, performance-based guidance; commercial codes & standards; and harmonization of standards.

### **Standards Board Winter Meeting Agenda Items**

The Standards Board has a full agenda planned in connection with the ANS Annual Conference. Discussion items include the following:

- A standards roundtable at the 2025 ANS Winter Conference;
- An ANS standards virtual week;
- The formation of a consensus committee dedicated to artificial intelligence for nuclear applications;
- Exploration of joint ISO/ANS standards;
- Approval of a minor reorganization to better support changing industry standards needs;
- Discussion on high-priority standards needing to be expedited.

### **Presentations to the Professional Divisions Committee (PDC)**

Bi-annual presentations continue to be made by Standards Board members to keep the PDC informed of standards activities and opportunities for involvement. Presentations were made to the PDC on November 17, 2024, during the 2024 ANS Winter Conference and virtually on June 6, 2025. Feedback from PDC members has been very positive to the interface.

### **New Areas for ANS Standards**

A new standard ANS-31.1, *Testing and Facilities for Space Nuclear Power and Propulsion Reactors*, has been initiated. This standard will be the first ANS standard for space reactors. The standard will provide provides criteria for the testing of nuclear reactors to be utilized for in-space related applications such as the production of electrical power for use on space platforms, on the surface of the moon or other solar system bodies and for the propulsion of space platforms and vehicles. This standard provides criteria to be used by the developers, analyzers, and evaluators of space reactors when considering the ground and in-space testing of space reactors and their associated equipment, as well as the facilities in which such testing is conducted. This standard is intended to be design, mission, sponsor, location, and facility agnostic.

ANS-20.3, *Oxygen Concentration Measurement in Molten Salt by Inert Gas Fusion Analysis*, is a proposed new standard. This standard will establish a standardized protocol for analyzing oxygen concentration in molten salts using inert gas fusion analysis. The comprehensive methodology includes the development of precise analytical procedures, optimized sample preparation techniques, and detailed analysis protocols to ensure accuracy and repeatability. The standardization effort covers a broad range of analyzers, ensuring compatibility and reliability across different instrumentation. This work aims to provide a universally applicable guideline for determining oxygen content in molten salts, facilitating consistency and comparability between users. The proposed new standard has been approved by the Research and Advanced Reactor Consensus Committee and is currently with the Standards Board for final approval before initiating the project.

### **Volunteer Engagement Including Utilization of Young and Emerging Professionals**

Membership of the ANS Standards Committee continues to grow. The collection of subject matter experts that participate in ANS standards is now 1029 (as of 5/16/25). The total number of volunteers includes 31 young professionals engaged as associate members. The Associate Member Program has placed 134 young professionals since 2015. The program has made a significant impact with 67 of these young professionals now in the full member role, several of which are taking on committee leadership positions. An additional 200 volunteers support our joint PRA committee with ASME.

### **Recently Initiated Standards**

- ANS-6.4, *Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants* (revision)
- ANS-8.19, *Administrative Practices for Nuclear Criticality Safety* (revision)
- ANS-8.23, *Nuclear Criticality Accident Emergency Planning and Response* (revision)
- ANS-15.11, *Radiation Protection at Research Reactors* (revision)
- ANS-31.1, *Standard for Testing and Facilities for Space Nuclear Power and Propulsion Reactors* (new)
- ANS-57.10, *Design Criteria for Consolidation of LWR Spent Fuel* (revision)

### **Recently Approved/Issued Standards**

- ANSI/ANS-3.11-2024, *Determining Meteorological Information at Nuclear Facilities* (revision)
- ANSI/ANS-8.20-2025, *Nuclear Criticality Safety Training for Fissionable Material Operations Outside Reactors* (revision)
- ANSI/ANS-8.26-2024, *Criticality Safety Engineer Training and Qualification Program* (revision)
- ANSI/ANS-19.10-2025, *Methods for Determining Neutron Fluence in BWR and PWR Pressure Vessel and Reactor Internals* (revision)
- ASME/ANS RA-S-1.3-2025, *Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications* (revision of trial-use standard)

### **Standards to Look for in the Near Future**

- ANS-2.22, *Environmental Radiological Monitoring at Operating Nuclear Facilities* (new guidance document)

- ANS-2.34, *Characterization and Probabilistic Analysis of Volcanic Hazards* (new)
- ANS-2.35, *Guidelines for Estimating Present & Projecting Future Socioeconomic Impacts from Construction, Operations, and Decommissioning of Nuclear Facilities* (new)
- ANS-2.36, *Accident Analysis for Aircraft Crash into Reactor and Nonreactor Nuclear Facilities* (new)
- ANS-3.5.1, *Nuclear Power Plant Simulators for Use in Simulation Assisted Engineering and Non-Operator Training* (new)
- ANS-3.13, *Nuclear Facility Reliability Assurance Program (RAP) Development* (new)
- ANS-3.15, *Risk-Informing Critical Digital Assets (CDAs) for Nuclear Power Plant Systems* (new)
- ANS-15.11, *Radiation Protection at Research Reactors* (new)
- ANS-30.2, *Categorization Classification of SSCs for New Nuclear Power Plants* (new)
- ANS-53.1, *Nuclear Safety Criteria for the Design of High Temperature Gas-Cooled Reactor Plants* (revision)
- ANS-54.8, *Liquid Metal Fire Protection in LMR Plants* (new)
- ANS-55.6, *Liquid Radioactive Waste Processing System for Light Water Reactor Plants* (new)
- ANS-56.2, *Containment Isolation Provisions for Fluid Systems After a LOCA* (new)
- ANS-60.1, *Civilian Nuclear Export Controls* (new)