

ANS Standards Overview

October 2012

American Nuclear Society Standards

Presenter

Presenter Title or Committee/Task

American Nuclear Society



Agenda



- What are Standards and why do we need them?
- Getting involved in the Standards Process
- History of Standards Development in the US
- Structure of the ANS Standards Committees
- Process of Standards Development
- Defining and Approving a Standard
- Benefits of the Standards Development Process



Why do we need standards?

- Provide Safety in Products and Operations
- Establishment of Best Practices for the Conduct of Operations
- Improve Economy and Efficiency
- Consumer acceptance: form, fit, and function
- Ensure Quality and Reliability
- Influence on regulatory guidance
- A professional obligation



What is a Standard?

- Standards are defined as a common and repeated use of rules, conditions, and guidelines for products or related processes.
- A standard is a document that sets forth requirements for design, manufacture, or operation.
- A standard can address the necessary physical and functional features of equipment, its safe application, or some combination of these.
- A standard is applicable only if an organization invokes its requirements (standards are intended to be voluntary) or if a government agency formally endorses it.

Applications of Standards



- Voluntary application
- Promulgation by a federal agency, making it a regulation
- Adoption by a state agency, making it a Code
- Endorsement by a governmental agency, making it regulatory guidance

Why standards and not regulations?



- Standards incorporate broad technical experience
- Standards combine peer review process with prescribed methods to reach consensus
- Standards committees provide the only forum in which all interested parties can objectively discuss technical issues, including regulators, competitors, industry groups, and the public.
- Standards provide workable solutions to concepts and established principles



Who Uses ANS Standards?

- Owners
- Vendors
- Architect-Engineers
- Consultants
- Government Agencies
- National Laboratories
- Universities
- Societies (including standards developing organizations)
- Individuals



Why Get Involved?

Help ANS

- A voluntary consensus standards program, like the one at ANS, stands on the strength and diversity of its volunteers. ANS Standards only come into existence due to the hard work, loyalty, and dedication of its volunteer network of hundreds of qualified individuals in the industry. Because of this, ANS always looks for and welcomes new volunteers to its development process.



Why Get Involved?

Help the Nuclear Industry

- But more than just helping ANS, participation in a standards development process helps the industry.
- Active participation in our committees ensures that industry standards stay current and generates ideas for new standards that are needed in the field.
- Your participation in standards also means that no longer do you silently wish a standard would do something for your field, now you can actually work to make sure a standard accomplishes just that.



Why Get Involved?

Help you

- There's someone else who also benefits from participation in our standards program: you, the volunteer. The consensus process offers an excellent network of industry experts. You not only have the opportunity to meet and work with people from a variety of backgrounds, but you have a chance to learn from their experiences.
- The standards development process is all about shared knowledge.

Standards Development History at ANS



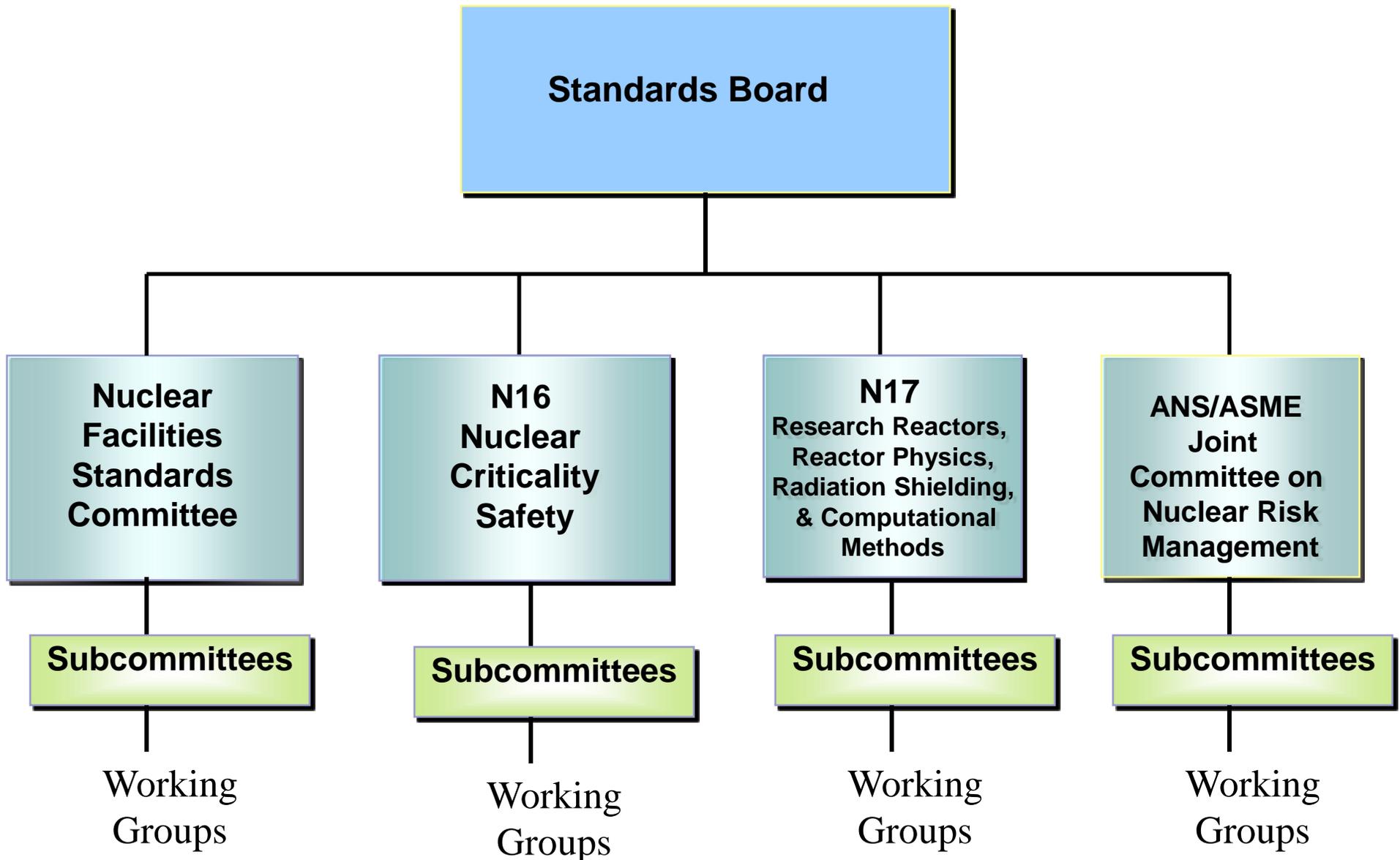
- ANS Standards Committee formed in 1957
- First three standards, in the areas of computer programming and criticality experiments, were produced as ANS Standards
- First American National Standard developed by ANS was approved in 1967, ANS-1, “A Code of Good Practices for the Performance of Critical Experiments.”
- ANS and ASME formed N6, “Reactor Safety,” in 1958, which produced ASA/N6.1-1964, “Safety Standard for Operations with Fissionable Material outside Reactors,” developed by ANS-8 but published by ASME.
- ANS developed 12 American National Standards from 1968 through 1973

ANS Standards Committee



- The Standards Committee consists of consensus committees, subcommittees, and working groups, all of which are under the administrative control and policy direction of the ANS Standards Board.
- The ANS Standards Committee is a stand-alone volunteer group governed by its accredited rules and procedures.
- Standards developed by the Standards Committee are intended to be issued as American National Standards.
- The Standards Committee reviews standards being developed or issued by other organizations on related topics to help ensure consistency and completeness and to avoid duplication.

ANS Standards Committee



Consensus Committee Responsibilities



- Develops broad consensus on each of its standards and ensures due process
- Establishes and manages subcommittees
- Selects members based on recognized expertise but must represent a balance among materially affected interests
- Typically has 20 to 25 members

Balance-of-Interests for Consensus Committees



Made up of several interest groups, with limit of one-third membership for any one group, Interest groups include:

- Owners
- Vendors
- Architect-Engineers
- Consultants
- Government Agencies
- National Laboratories
- Universities
- Societies (including standards developing organizations)
- Individuals

Subcommittees



- Established by consensus committees
- Assigned to a specific technical area
- Provides in-depth technical review prior to consensus balloting. Reviews may include formal voting.
- Members selected based on recognized expertise. Balance not required but encouraged.
- Typically has 15 to 20 members; usually includes all working group chairmen.



List of Subcommittees

- ANS-1: Conduct of Critical Experiments (N17)**
- ANS-6: Radiation Protection & Shielding (N17)**
- ANS-8: Fissionable Material Outside Reactors (N16)**
- ANS-10: Mathematics & Computation (N17)**
- ANS-14: Fast Pulse Reactors (N17)**
- ANS-15: Operation of Research Design (N17)**
- ANS-19: Physics of Reactor Design (N17)**
- ANS-21: Maintenance, Operations, Testing & Training (NFSC)**
- ANS-22: System Design Criteria (NFSC)**
- ANS-24: Modeling & Analysis (NFSC)**
- ANS-25: Site Characteristics (NFSC)**
- ANS-26: Emergency Planning (NFSC)**
- ANS-27: Fuel Cycle, Waste Management & Decommissioning (NFSC)**
- ANS-28: HTGR Design Criteria (NFSC)**
- ANS-29: Advanced Initiatives (NFSC)**



Working Groups

- Chairman selected by Subcommittee
- Members selected by Chairman; balance is not a consideration
- Members must have recognized expertise in the subject
- Responsible for developing draft standard and for resolving comments from Subcommittee, Consensus Committee, and public review
- Typically has 4 to 10 members

An ANSI Standards Process Involves:



- Consensus by a group that is open to representatives from all interested parties
- Broad-based public review and comment on draft standards
- Consideration of and response to comments
- Incorporation of submitted changes that meet the same consensus requirements into a draft standard
- Availability of an appeal by any participant alleging that these principles were not respected during the standards-development process.

Consensus



- Consensus is the state of having reached substantial agreement
- Significantly greater than a simple majority but with some dissent allowed
- Declaring consensus requires an evaluation of the balance of interests of those approving or dissenting

How are Standards Done?

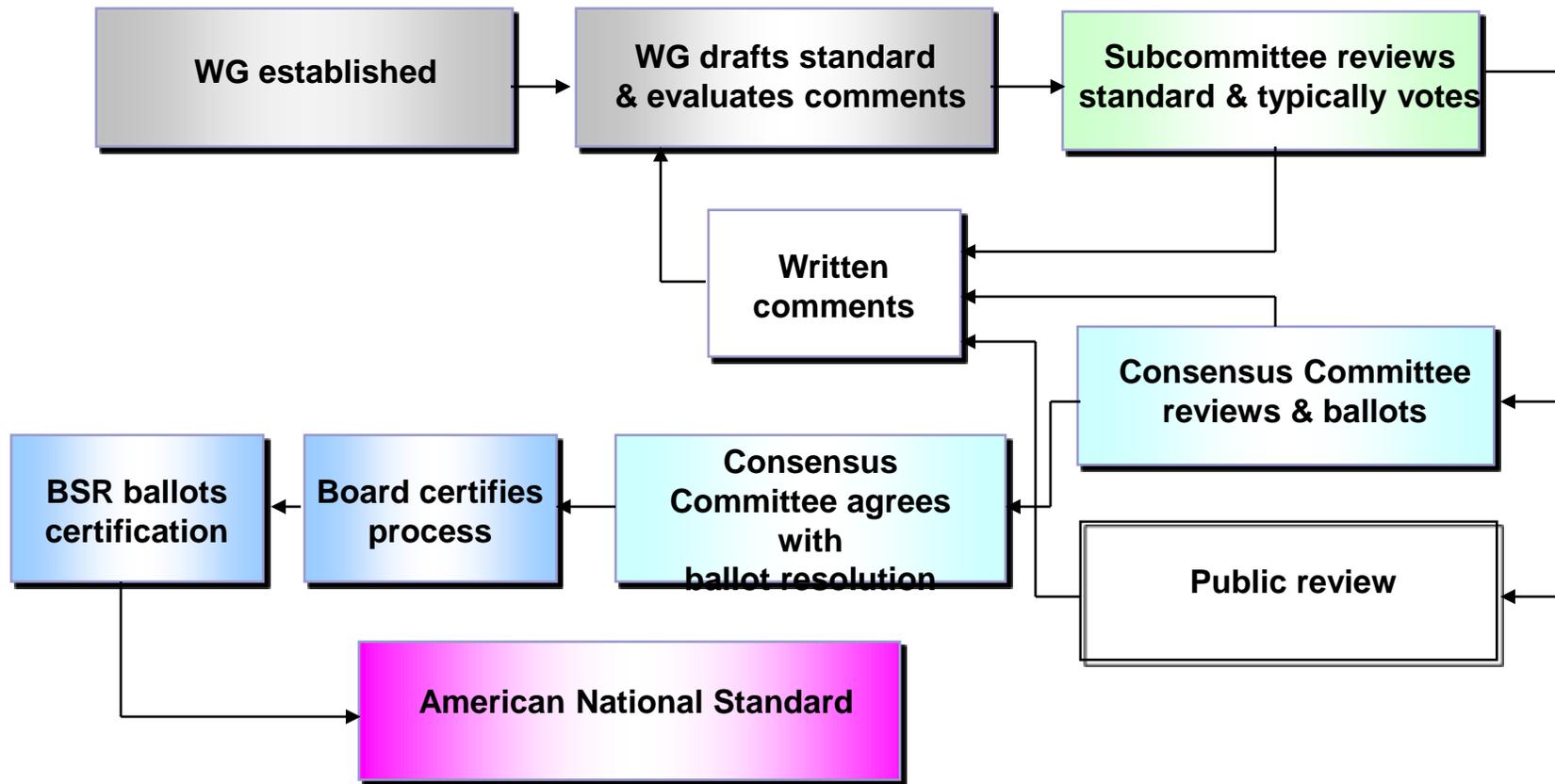


- Identify Need
- Form Working Group
- Initiate Project
- Develop Standard
- Review
- Respond to Comments
- Certify Due Process and Consensus



ANS Standards Overview

Development Process



Unique Verbs in Standards



- *shall* designates a requirement
- *should* designates a recommendation, not a requirement
- *may* designates permission, neither a requirement nor a recommendation

Language of a Standard



- Requirements are always denoted by using a “shall” statement (e.g., not “must,” “need,” or “ought to”)
- Concise statements of requirements (minimal descriptive material)
- Important concepts where technology is insufficiently mature to invoke a requirement can be expressed as a recommendation
- Recommendations are always denoted by a “should” statement

Language of a Standard (continued)



- Permission can be provided in cases where the use of a function or feature is believed important but is not recognized by a regulator
- Permission is always denoted by a “may” statement (e.g., not “can” or “might,” which are only used in a factual or descriptive sense)

Review and Comment Response



- After the working group has created a draft of the standard, it is sent to the appropriate Subcommittee for review
- All comments from the Subcommittee are returned to the Working Group for Response
- The Working Group will respond to all comments and try to resolve them as appropriate.
- After approval from the Subcommittee, the standard is sent to the Consensus Committee for review
- A similar comment response and resolution process is followed for comments from the Consensus Committee

Public Review and Comment Response



- While the Standard is being reviewed by the Subcommittee and Consensus Committee, it is also available for public review.
- Public comments are handled in the same manner as those from the Subcommittee or the Consensus Committee

Certification



- After the standard has been approved by the appropriate Subcommittee and Consensus Committee, it is sent to the ANS Standards Board for Certification
- The ANS Standards Board certifies that the ANSI process was followed and all relevant parties were involved in achieving a consensus standard.

Maintenance of Standards



- ANSI requires that all American National Standards be maintained every five years. The Accredited Rules and Procedures incorporate this requirement.
- Maintenance means a standard must be revised, reaffirmed, or withdrawn within five years after approval
- Reaffirmed means no changes can be made to the standard (not even references)
- Subcommittees are responsible for initiating maintenance action, which could include reconstituting the WG or appointing a new chair.

Maintenance of Standards (continued)



- The Standards Administrator can formally request an extension beyond the five-year period if work on the standard cannot be completed in time
- If maintenance is not performed within 10 years, ANSI automatically withdraws the standard.
- Any standard may be revised at any time if a technical basis for doing so is identified.

Benefits of the Standards Development Process



- The only forum in which all facets of the industry participate
- Unique opportunity for the free exchange of ideas, including between regulators and regulated
- Discussions can be broad ranging (such as operations and regulatory interpretations)
- Each member has an equal standing
- Communication, understanding, and appreciation for different views and philosophies