

# A Perspective on the Interaction between the NCS D and ANSI/ANS-8 Standards

NCS D Topical Meeting 2017

Dr. Bowen

Dr. Busch

Larry Wetzel, P.E.



*Exceptional  
service  
in the  
national  
interest*



Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

# Outline

- Intent
- Historical BKG of ANSI/ANS-8 series
- Consensus Process Overview
- NCSD History and Involvement
- Current Interactions and Benefits

# Intent

- **Illuminate** the reasons behind the **culture** of standards involvement by the NCSD community.
- Highlight activities that support/build this culture
- Request from ANS Prof. Div. Committee (PDC)
  - *“increase support to Standards development”*
  - NCSD’s *“**Healthy level of involvement...**”*
  - NCSD requested to **share best practices**

# ANSI/ANS-8 series BKG

- 60+ years of guides and standards
- 1955 recognized that guidance was necessary as the Nuc. industry was expanding/maturing.
- 1955- Committee selected to prepare a draft “guide”
  - 1956: Issued classified report
  - 1957: TID-7016 published - unclassified version
  - 1961: TID-7016, Rev. 1
  - 1978: TID-7016, Rev. 2
  - 1996: LA-12808: “*in spirit*” Rev. 3 of TID-7016

# ANSI/ANS-8 series BKG (1960-70)

- 1958-1962: Cluster criticality accidents
- 1<sup>st</sup> NCS Standard: N6.1-1964
  - Parent of ANSI/ANS-8.1
  - Prepared in 1958 – **adopted in 1964**
- By 1972:
  - 4 NCS related standards
  - 6 more being explored.
  - 8.1, 8.3, 8.5, 8.6, 8.7, 8.10 and parts of 8.19, 8.23, and 8.24 trace beginnings to the mid/late 1960s.
  - Some have been subsumed/withdrawn

# Roy Reider [LA-4671 (1971)]

*Any history of safety usually recognizes the enormous influence that accidents have on the safety standards and procedures employed thereafter... These incidents should be of only historic interest now because the techniques employed then would not even be considered today. However, there are **powerful lessons to be learned from the early history of criticality safety** as well as the early history of criticality accidents.*

# LA-13638 (2000)

*In the U.S., technical guidance and administrative good practices were codified in a series of documents entitled Nuclear Safety Guide, beginning with the 1957 edition. **Many of these same people then became involved in the development of American National Standards and then international standards.** Similar actions developed in parallel in other countries, both those that had experienced criticality accidents and those that had managed to work with fissile materials without accidents. **The marked decrease in the accident rate by the late 1960s was probably due to a combination of adherence to these newly codified regulations and guidance and upper management attention to this new hazard.***

# ANSI/ANS Consensus Process

- Intended to verify the principles of **openness and due process** have been followed
- that a **consensus of all interested stakeholder** groups has been reached.
- USA --- ANSI is the only accreditor of NCS related voluntary consensus standards of which the ANS is the developing organization.



# ANSI Developments

- 1969 Adopted ANSI name
- 1970, a public review process was formalized and **ANSI BSR** created
  - Board of Standards Review (BSR) **implemented procedures**
  - Ensure standards met Institute guidelines
  - **Enhanced the credibility** of ANSI standards

# ANSI/ANS Consensus Process

- Structure for ANS-8 series

**NCSCC**  **ANS-8**  **19 WGs**

- NCSCC – Responsible for preparation and maintenance of NCS related voluntary consensus standards
- Subcommittee ANS-8 – aims “to establish standards providing guidance in the prevention of nuclear chain reactions... for handling, storing, transporting, processing, and treating fissionable nuclides.”

# ANS-8 Working Groups

- 19 working groups (18 issued; 1 development)
  - ~128 individuals, ~56 on multiple WGs
- Positions to facilitate involvement
  - Members, Observers/Liaisons, Reviewers, & Associate members
    - **Associate: increasingly becoming a preferred avenue for young/new members.**
      - Learn consensus process
      - Learn history/intent of a specific WGs recommendations/requirements

# ANS-8 Working Groups cont.

- Approved standards can be adopted by nuclear facilities, regulators, etc.
- Working groups and the standards process
  - Provide “**neutral ground**” for regulators and licensees, NRC and DOE, to work together to establish good NCS practices.
  - Attempts to **balance** variable perspectives
  - Looking to ensure “**consistency** of use”

# NCSD Involvement

- **1967:** ANS authorized formation of technical group for NCS
- **1969:** NCSD formally a division of ANS
  - Timing = Synergy between NCSD and ANSI/ANS-8
- NCSD supporter/instigator for some ANS-8 standards and NCS guides
- NCSD fosters the culture of standards use/development
  - ~750 members, ~17% participate on standards

# NCSD support

- Tend to be recognized as separate activities
  - Several Generations have passed
  - Imbedded into the NCS culture
- Need to reinforce/acknowledge the relationship
  - Work with YMG and students to provide opportunities to be involved with both
  - Provide avenue for involvement, networking, ultimately knowledge transfer

# NCSD support

- 1 Session/meeting dedicated to SubC-**ANS-8**
  - All WGs provide status
- Special sessions/tutorials
  - new and significantly revised standards
- NCSCC sponsored poster/panel session (~4 yr)
- Several WG meetings per ANS meeting
  - 2017 Summer meeting: 6 of 13
- Reporting on WG activities: NCSD Newsletter, Collaborate, Listserv
- NCSD Education Committee

# Culture/Benefits

- Part of the NCSD Culture
  - Intertwining has provided a strong group of volunteers willing to work on standards.
- Healthy perspective towards standards involvement within the NCS community
  - Viewed as an avenue that helps build a company's/individual's professional reputation
  - Part of professional development/ qualifications
  - Avenue for shaping and preparing future standards, and subsequently future regulations.



# Conclusion

- Due to the application of the ANS-8 standards in today's regulatory environment it is important that the NCSD continues supporting the culture of standards involvement.
- Improvement in reaching younger members
  - Issues with expectations on speed of progress
  - Associate members