American Nuclear Society

ANS Standards for MSR Reactors

By George Flanagan
Chairman of the ANS Standards Board

Presented to:

MSR Workshop

October 4-5, 2016

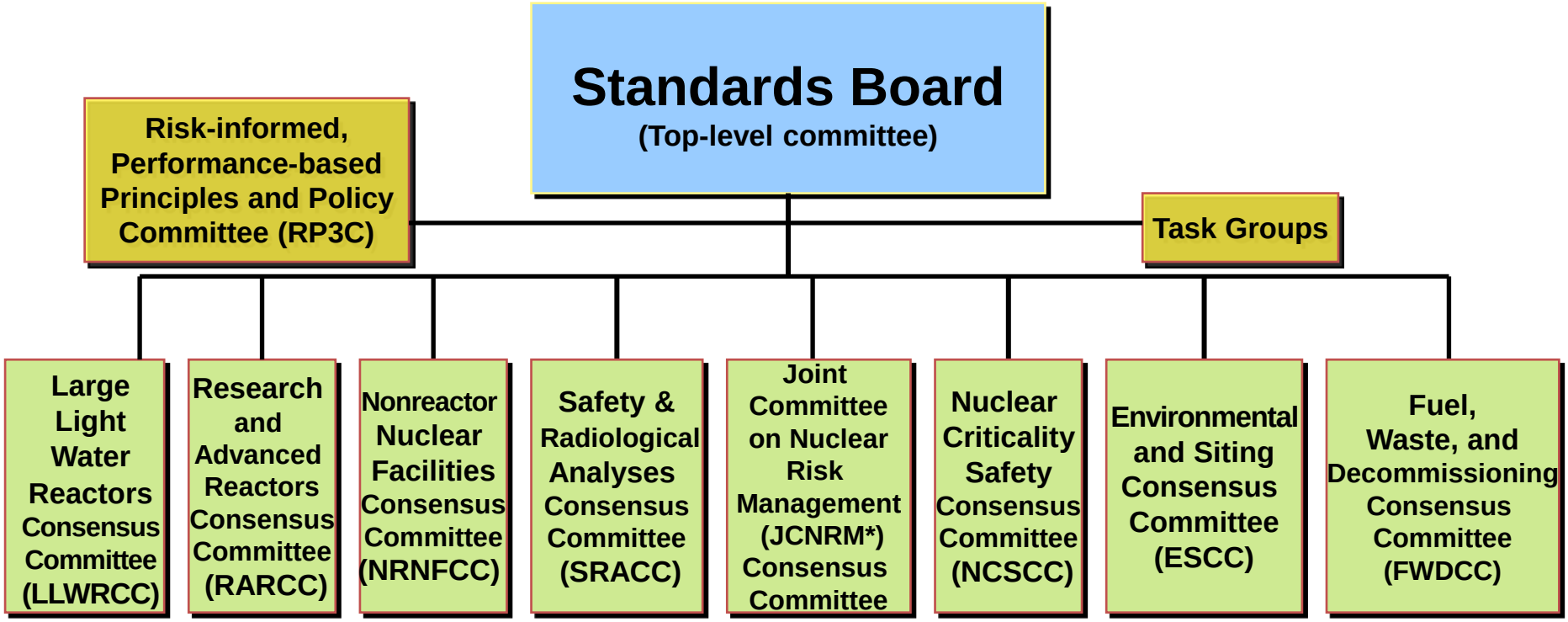
American Nuclear Society

Standards Play a Fundamental Role in the Regulation and Licensing of Nuclear Power Plants

- They are encoded in the regulations (10CFR 50 and 10CFR 52) – mostly ASME, IEEE and ASTM.
- OMB Circular A119 “Federal Participation in the Development and Use of Voluntary Standards and in Conformity Assessment Activities” requires regulatory bodies to consider using voluntary standards rather than develop their own
- Standards are referenced in Regulatory Guides and the Standard Review Plan.
- Most are LWR focused

American Nuclear Society

The ANS Standards Committee



*The JCNRM is a joint ANS and ASME committee

American Nuclear Society

The Research and Advanced Reactor Consensus Committee Has Four Standards that Directly Support MSR Reactors

- ANS-20.1, “Nuclear Safety Design Criteria for Fluoride Salt-Cooled High-Temperature Reactor Nuclear Power Plants” (in development)
- ANS-20.2, “Nuclear Safety Design Criteria and Functional Performance Requirements for Liquid-Fuel Molten Salt Reactor Nuclear Power Plants” (in development)
- ANS-30.1, “Integrating Risk and Performance Objectives into New Reactor Nuclear Safety Designs” (in development-first draft)
- ANS-30.2, “Categorization and Classification of Structures, Systems, and Components for New Nuclear Power Plants” (in development)
  - Membership solicited from IEEE and ASME

American Nuclear Society

Joint Committee on Nuclear Risk Management JCNRM (ANS/ASME) Has a Standard for Non-LWRs Issued for Trial Use

- ASME/ANS RA-S-1.4-2013 "Probabilistic Risk Assessment Standard for Advanced Non-LWR Nuclear Power Plants", December 9, 2013

American Nuclear Society

ANS Standards for Research Reactors Form the Basis for Acceptance Criteria in NUREG 1537 (Guidelines for Preparation and Reviewing Applications for the Licensing of Non-Power Reactors)

- Eleven ANS standards are referenced:
  - ANS 15.1, 15.2, 15.4, 15.7, 15.8, 15.11, 15.15, 15.16, 15.17, 15.19, 15.20
- These will need to be examined to determine applicability for use in licensing a MSR test reactor

American Nuclear Society

The Working Groups (ANS 20.1 and 20.2) Would Welcome Your Participation

- ANS 20.1 Chairman Ed Blandford (edb@unm.edu)
- ANS 20.2 Chairman David Holcomb (holcombde@ornl.gov)
- ANS 30.1 Chairman Mark Linn (linnma@ornl.gov
- ANS 30.2 Chairman Amir Afzali (AAFZALI@southernco.com)
- ANS 20.1 and 20.2 will be meeting at the ANS winter meeting on Wednesday Nov. 9, 2016 in Las Vegas.
- Both standards are being developed to support the Advanced Reactor Design Criteria program which will be discussed here by NRC.