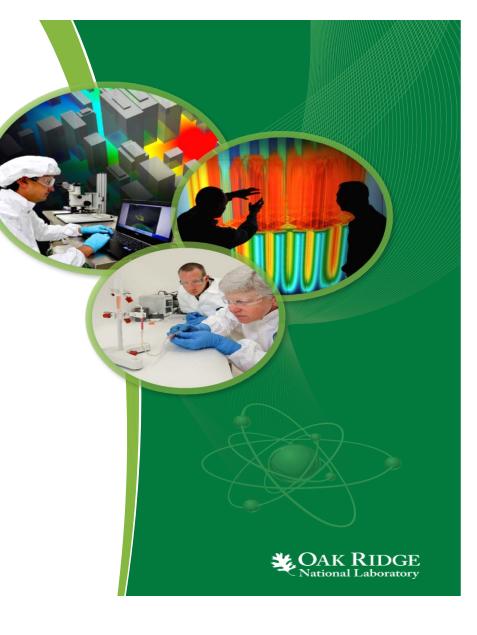
American Nuclear Society Standards Committee Subcommittee 8 Meeting

Doug Bowen **ANS-8 Subcommittee Chair**

Marriott Wardman Park – Washington, DC November 2, 2017 – 9:35 AM – 11:40 AM

Location: Delaware B



Agenda

- ANS-8 membership
- Approval of prior SC8 minutes (San Francisco, CA June 2017)
- Use of web space for all ANS-8 work
- SC8 chair project activity
- ISO TC85/SC5/WG8 Standards Activity Report D. Bowen
- Nuclear Criticality Safety Consensus Committee (NCSCC) Activity Report L. Wetzel
- Reports from working group chairs
- Old/New business
- Next ANS-8 Standards Forum
- Adjourn



Approval of prior SC8 minutes (San Francisco, CA – June 2017)

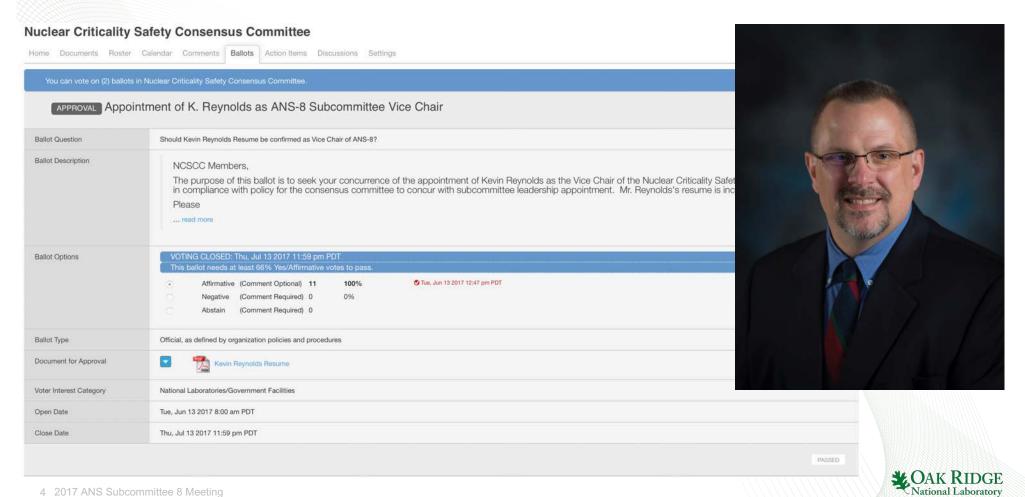
All Ballots in this Group

showing 26 of 26 ballots

Close Date ♣	Ballot Name	Voting Results	Voting Results				
		Affirmative	12	100%	CHANGE VOTE		
2017-11-02	Approval of ANS-8 June 2017 Minutes	Negative w/comm	0	0%	4 voter comments		
		Abstain w/comment	3		APPROVAL		



Welcome – ANS-8 Subcommittee Vice Chair



ANS-8 membership

#	ANS-8 SC Members	Company	E-mail address
1	J. S. Baker	Savannah River Nuclear Services	james.baker@srs.gov
2	D. G. Bowen (+)	Oak Ridge National Laboratory	bowendg@ornl.gov
3	M. Barnett	URS Professional Solutions, LLC	Marvin.barnett@aecom.com
4	N. Brown	Nuclear Fuel Services	nwbrown@nuclearfuelservices.com
5	M. Crouse (+++)	Consolidated Nuclear Security, LLC	michael.crouse@cns.doe.gov
6	E. Elliott	Los Alamos National Laboratory	elliottep@lanl.gov
7	D. Erickson	Savannah River Nuclear Services	david.erickson@srs.gov
8	B. O. Kidd	Paschal Solutions, Inc.	b.o.kidd57@gmail.com
9	K. Kimball	U.S. Department of Energy, Y-12	kimballkd@y12.doe.gov
10	T. P. McLaughlin	Los Alamos National Laboratory (retired)	tpm@pobox.com; tpm@lanl.gov
11	J. A. Morman	Argonne National Laboratory	jamorman@anl.gov
12	L. E. Paulson	GE Hitachi Nuclear Energy	lon.paulson@ge.com
13	A. Prichard (*)	Pacific Northwest National Laboratory	andrew.prichard@pnnl.gov
14	K. Reynolds (++) (*)	Consolidated Nuclear Security, LLC	Kevin.Reynolds@cns.doe.gov
15	C. Tripp	Nuclear Regulatory Commission	christopher.tripp@nrc.gov
16	D. Winstanley	Sellafield Sites (U.K.)	ddw1@sellafieldsites.com
17	Vacancy		

⁺ ANS-8 Chair; ++ ANS-8 Vice Chair; +++ ANS-8 Secretary; * new member



Use of Standards Workspace for all ANS-8 work

YouT	ube Links to Recorded Ti	rainings
*Table Acronyms:	(Policies, Rules, Procedures, Process) CC = consensus committee	SubC = subcommittee
WG = working group	SB = Standards Board	VChair = vice chair
Description of Training		Recommended Audience
Training Module #1: Overview of I	 CC members SubC chairs, Vchairs, members WG chairs & Vchairs RP3C at-large members 	
Training Module #2: ANS Standard https://www.youtube.com/watch?	AND THE RESERVE OF THE PROPERTY OF THE PROPERT	 CC members SubC chairs, Vchairs, members WG chairs , Vchairs, and members RP3C at-large members
Training Module #3: Voluntary Co https://www.youtube.com/watch?	nsensus Standards Development Process Pv=74oRKQPrM w	CC chairs, Vchairs, and members SubC chairs, Vchairs, and members WG chairs , Vchairs, and member.
Training Module #4: Governing Do 1) ANS Bylaws, Rules, and Proced 2) ANSI Essential Requirements: D Standards 3) ANS Standards Committee Rule https://www.youtube.com/wa	ures (not audited by ANSI) Oue process requirements for American National es and Procedures	 SB members CC chairs, Vchairs, and members SubC chairs & Vchairs WG chairs & Vchairs
Training Module #5: Governing Do 1) Policy Manual for the ANS Stan	dards Committee cedures for Consensus Committees	SB members CC chairs, Vchairs, and members SubC chairs & Vchairs WG chairs & Vchairs



ANS-8 Ballots Since the Last ANS-8 Meeting

Close Date	Ва	illot Name	Voting Results			Status
			Affirmative	11	100%	CHANGE VOTE
2017-11-02	⊚	Approval of ANS-8 June 2017 Minutes	Negative w/co	0	0%	4 voter comments
			Abstain w/com	3		APPROVAL
	_		Affirmative	14	100%	[Dunners b]
2017-09-22	⊚	ANS-8 Approval of ANS-8.7-1998; R201x	Negative w/co	0	0%	PASSED
			Abstain w/com	0		
	_		Affirmative	13	100%	PASSED
2017-08-04	0	ANS-8 Approval of ANS-8.1-201x PINS	Negative w/co	0	0%	2 voter comments
			Abstain w/com	0		APPROVAL
			Affirmative	13	100%	Dinorp b
2017-07-29	0	ANS-8 Approval of Reaffirmation of ANS-8.3-1997; R201x	Negative w/co	0	0%	PASSED PASSED
			Abstain w/com	0		And the second second
			Affirmative	13	100%	PASSED
2017-07-29	0	ANS-8 Approval of Reaffirmation of ANS-8.5-1996; R2012	Negative w/co	0	0%	1 voter comment
			Abstain w/com	0		APPROVAL

7 2017 ANS Subcommittee 8 Meeting

National Laboratory

NCSCC Ballots Since the Last ANS-8 Meeting

Close Date	Bal	llot Name	Voting Results			Status	
			Affirmative	8	100%	CHANGE VOTE	
2017-11-10	0	NCSCC Approval of ANS-8.7-1998; R201x	Negative w/comment	0	0%	1 voter comment	
			Abstain w/comment	0		APPROVAL	
			Affirmative	8	72.727%	PASSED)
2017-10-29	0	NCSCC Approval of ANS-8.21-201x Draft	Negative w/comment	3	27.273%	32 voter comments	
			Abstain w/comment	0		APPROVAL	(-)
			Affirmative	15	100%	PASSED	,
017-10-06	0	Recirculation of NCSCC Approval of Draft of ANS-8.24-201x	Negative w/comment	0	0%	2 voter comments	
			Abstain w/comment	0		RECIRCULATION	
			Affirmative	12	100%	Commen	
2017-09-29	0	Approval of Reaffirmation of ANS-8.5-1996; R201x	Negative w/comment	0	0%	PASSED	
			Abstain w/comment	0			
			Affirmative	13	100%	PASSED	
017-09-29	0	NCSCC Approval of ANS-8.1-201x PINS	Negative w/comment	0	0%	1 voter comment	
			Abstain w/comment	0		APPROVAL	
			Affirmative	13	100%	-	
017-09-18	0	Approval of Reaffirmation of ANS-8.3-1997; R201x	Negative w/comment	0	0%	PASSED	
			Abstain w/comment	0		TO THOMAS	
			Affirmative	11	100%	PASSED	
017-07-20	0	NCSCC Approval of Reaffirmation of ANS-8.6-1983; R2010	Negative w/comment	0	0%	3 voter comments	
			Abstain w/comment	0		APPROVAL	-
			Affirmative	11	100%	[DARRED	
017-07-13	0	Appointment of K. Reynolds as ANS-8 Subcommittee Vice Chair	Negative w/comment	0	0%	PASSED APPROVAL	
			Abstain w/comment	0		A STATE OF THE STA	



All Ballots in this Group

SC8 chair project activity

- The basis/intent of standards recommendations and requirements are often not well understood. Examples include the following:
 - Double contingency principle
 - Difference between a "...credible abnormal condition..." and "...changes in process conditions..."
 - CAAS detection criterion \ "non-trivial risk of criticality"
- In other cases, perhaps the reason the requirement exists can help with general understanding of the standards and how they work together for safety purposes: Example from ANS-8.10-2015, 4.2.3, "Structural integrity":

The shielding and confinement system shall be designed to withstand physical damage from credible events and maintain function.

WHY?



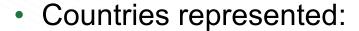
SC8 chair project activity (continued)

- The statements appear to be clear, but they may not be to those using the standards but not involved with their development
- Goal: Provide an intent or basis statement for each requirement and recommendation in the ANS-8 standards during the revision process
- Task: Generate a whitepaper for each ANS-8 standard to provide a basis statement for each recommendation or requirement in the standard. Load onto ANS Standards Workspace



ISO TC85/SC5/WG8 standards activity report

 ISO/TC 85/SC5 /WG8, Nuclear Criticality Safety meeting on May 15–18, 2017 at ASTM Headquarters in West Conshohocken, Pennsylvania



- 3-CA
- 3-FR
- 1-JP
- 1-SE
- 3-UK
- 2-US







ISO TC85/SC5/WG8 standards activity report: major projects

New work item proposals

- Revision to ISO 7753, Performance and Testing Requirements for Criticality Detection and Alarm Systems (planning in progress – FR to lead)
- Solid waste standard (new work item proposal [NWIP] ballot successfully completed)
- Nuclear criticality safety risk assessment methodology (committee debate still in progress)
- NCS operations training (NWIP ballot in progress)

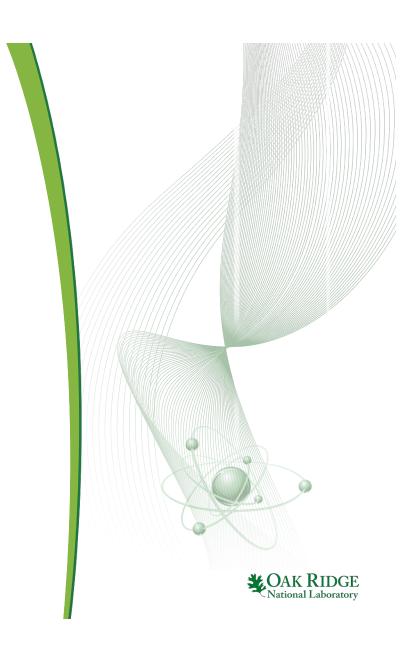
Draft international standards

- Nuclear criticality safety dimensions (NWIP ballot successful; FR would like to proceed directly to a draft international standard [DIS] ballot)
- ISO 1709 Principles of Criticality Safety in Storing, Handling, and Processing (final DIS [FDIS] ballot in progress)



NCSCC activity report

L. Wetzel



Reports from working group chairs

Standard	Title	Chair
ANS-8.1	Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	D. Bowen N. Brown
ANS-8.3	Criticality Accident Alarm System	D. Bowen (acting)
ANS-8.5	Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material	J. Hicks
ANS-8.6	Safety in Conducting Subcritical Neutron-Multiplication Measurements in Situ	B. Myers
ANS-8.7	Nuclear Criticality Safety in the Storage of Fissile Materials	K. Kimball
ANS-8.10	Criteria for Nuclear Criticality Safety Controls in Operations With Shielding and Confinement	A. Prichard
ANS-8.12	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	C. Tripp
ANS-8.14	Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors	L. Berg
ANS-8.15	Nuclear Criticality Control of Special Actinide Elements	C. Rombough

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Standard	Title	Chair
ANS-8.17	Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors	B. Kidd
ANS-8.19	Administrative Practices for Nuclear Criticality Safety	J. Miller
ANS-8.20	Nuclear Criticality Safety Training	R. Knief D. Hill
ANS-8.21	Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	D. Erickson
ANS-8.22	Nuclear Criticality Safety Based on Limiting and Controlling Moderators	M. Crouse
ANS-8.23	Nuclear Criticality Accident Emergency Planning and Response	J. Baker
ANS-8.24	Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations	L. Wetzel
ANS-8.26	Criticality Safety Engineer Training and Qualification Program	K. Reynolds
ANS-8.27	Burn-up Credit for LWR Fuel	D. Lancaster
ANS-8.28 (in dev.)	Administrative Practices for the Use of Non-Destructive Assay Measurements for Nuclear Criticality Safety	J. Chapman



Nuclear Criticality Safety Consensus Committee (NCSCC) List of Standards & Projects (8/24/17) Chair: Larry L. Wetzel Vice Chair: William R. Shackelford

Fis	sionable Materials Outside Reactors Subcommittee (ANS-	8)		
	Subcommittee Chair: Douglas Bowen			
	18 Current Standards			
	1 Proposed New Standard			
	® = PINS submitted to ANSI	RV 4/15/2014		
ANS-8.1-2014	Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors (WGG			
ANS-8.3-1997 (R2012) ®	Criticality Accident Alarm System	RF 7/26/2012 (WGC: D. Bowen [temp])		
ANS-8.5-1996 (R2012)	Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material	RF 2/23/2012 (WGC: J. Hicks)		
ANS-8.6-1983 (R2017)	Safety in Conducting Subcritical Neutron-Multiplication Measurements In Situ	RF 8/24/17 (WGC: W. Myers)		
ANS-8.7-1998 (R2012) ®	Nuclear Criticality Safety in the Storage of Fissile Materials	RF 2/23/2012 (WGC: K, Kimball)		
ANS-8.10-2015	Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement	RV 2/12/2015 (WGC: A. Prichard)		
ANS-8.12-1987 (R2016) ®	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	RF 5/6/2016 (WGC: C. Tripp)		
ANS-8.14-2004 (R2016)	Use of Soluable Neutron Absorbers in Nuclear Facilities Outside Reactors	RF 6/29/2016 (WGC: L. Berg)		
ANS-8.15-2014	Nuclear Criticality Control of Special Actinide Elements	RV 10/10/2014 (WGC: C. Rombough)		
ANS-8.17-2004 (R2014)	Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors	RF 7/28/2014 (WGC: B. Kidd)		
ANS-8.19-2014	Administrative Practices for Nuclear Criticality Safety	RV 7/28/2014 (WGC: J. Miller)		
ANS-8.20-1991 (R2015) ®	Nuclear Criticality Safety Training	RF 8/3/2015 (WGC: R. Knief/D. Hill)		
ANS-8.21-1995 (R2011) ®	Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	RF 5/19/2011 (WGC: D. Erickson)		
ANS-8.22-1997 (R2016)	Nuclear Criticality Safety Based on Limiting and Controlling Moderators	RF 10/17/2016 (WGC: M. Crouse)		
ANS-8.23-2007 (R2012) ®	Nuclear Criticality Accident Emergency Planning and Response	RF 5/31/2012 (WGC: J. Baker)		
ANS-8.24-2007 (R2012) ®	Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations	RF5/31/2012 (WGC: L. Wetzel)		
ANS-8.26-2007 (R2016) ®	Criticality Safety Engineer Training and Qualification Program	RF 12/15/2016 (WGC: K. Reynolds)		
ANS-8.27-2015	Burnup Credit for Light Water Reactor Fuel	RV 11/10/15 (WGC: D. Lancaster)		
ANS-8.28 (NEW) ®	Administrative Practices for the Use of Non-Destructive Assay Measurements for Nuclear Criticality Safety	Active Project WGC: J. Chapman		



NCSCC delinquent standards report (1 of 3)

Consensus Committee Chair: Larry Wetzel (Ilwetzel@bwxt.com)

Consensus Committee Vice Chair: William R. Shackelford (wrshackelford@nuclearfuelservices.com)

ANS-8 Subcommittee Chair: Douglas Bowen (bowendg@ornl.gov)
ANS-8 Secretary: Michael Crouse (michael.crouse@cns.doe.gov)

Maintenance Coordinator:

Color Code:

Purple (~9th year): Perform maintenance ASAP. Those in revision should be reaffirmed to keep current if appropriate.

Dark Red (>5 years old): Delinquent. Maintenance needed if not already in progress.

Red (~4th year): Start Maintenance, if not already in progress.

Designation	Title	Sub- committee	Working Group Chair	PINS Submitted	ANSI Approval	Extension Date	Action Needed By	Comments
	Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors	ANS-8	D. Erickson	2/12/2008 & resubmitted 6/1/2011 after RF	5/19/2011		5/19/16	Draft @ NCSCC ballot Per PINS, ANS-8.5 w/b incorporated into RV of ANS-8.21
ANS-8.5-1996 (R2012)	Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material	ANS-8	J. Hicks		2/23/2012	12/31/19		RF Certified by SB; ANSI Approval Pending; Being incorporated into ANS-8.21
	Nuclear Criticality Safety in the Storage of Fissile Materials	ANS-8	K. Kimball	10/18/16	2/23/2012		11 1 3 1 1 1	RF @ NCSCC ballot Revision in progress.
(R2012)	Nuclear Criticality Accident Emergency Planning and Response	ANS-8	J. Baker	7/7/16	5/31/2012			Revision in progress. Should be reaffirmed as soon as possible
ANS-8.24-2007 (R2012)	Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations	ANS-8	L. Wetzel	3/18/14	5/31/2012		5/31/17	Letter Ballot for Revision @ SB for Certification



NCSCC delinquent standards report (2 of 3)

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Red (~4th year): Start Maintenance, if not already in progress.

Designation	Title	Sub- committee	Working Group Chair	PINS Submitted	ANSI Approval	Extension Date	Action Needed By	Comments
ANS-8.3-1997 (R2012)	Criticality Accident Alarm System	ANS-8	D. Bowen (temp chair)	8/1/12	7/26/2012		7/26/17	RF Certified by SB; ANSI Approval of RF Pending Revision in development
ANS-8.1-2014	Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors	ANS-8	D. Bowen N. Brown		4/15/14		4/15/19	PINS @ SB
ANS-8.17-2004 (R2014)	Criticality Safety Criteria for the Handling, Storage and Transportation of LWR Fuel Outside Reactors	ANS-8	B. Kidd		7/28/2014		7/28/19	
ANS-8.19-2014	Administrative Practices for Nuclear Criticality Safety	ANS-8	J. Miller		7/28/2014		7/28/19	
ANS-8.15-2014	Nuclear Criticality Control of Selected Actinide Nuclides	ANS-8	C. Rombough		10/10/2014		10/10/19	
ANS-8.10-2015	Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement	ANS-8	A. Prichard		2/12/2015		2/12/20	
ANS-8.20-1991 (R2015)	Nuclear Criticality Safety Training	ANS-8	R. Knief D. Hill	3/10/2011 & resubmitted 9/30/2015 after RF	8/3/2015		8/3/20	Revision in progress.
ANS-8.27-2015	Burnup Credit for LWR Fuel	ANS-8	D. Lancaster		11/10/2015		11/10/20	



NCSCC delinquent standards report (3 of 3)

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Designation	Title	Sub- committee	Working Group Chair	PINS Submitted	ANSI Approval	Extension Date	Action Needed By	Comments
	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors	ANS-8	D. Biswas	9/27/2007 & resubmitted 5/16/2016 after RF	5/6/2016		2/11/16	Revision in progress.
ANS-8.14-2004 (R2016)	Use of Soluble Neutron Absorbers in Nuclear Facilities Outside Reactors	ANS-8	L. Berg		6/29/2016		6/29/21	
ANS-8.22-1997 (R2016)	Nuclear Criticality Safety Based on Limiting and Controlling Moderators	ANS-8	M. Crouse		10/11/16		10/11/21	Revision to be initiated
ANS-8.26-2007 (R2016)	Criticality Safety Engineer Training and Qualification Program	ANS-8	K. Reynolds	1/17/17	12/15/16		12/15/21	
	Safety in Conducting Subcritical Neutron-Multiplication Measurements in Situ	ANS-8	B. Myers		8/24/17		8/24/22	



Old and new business





Next ANS-8 standards forum:

Marriott Philadelphia Downtown
Philadelphia, PA
Thursday, June 21, 2018

