EMERGENCY MANAGEMENT ROUNDUP

EXPECT THE UNEXPECTED

Update on ANSI/ANS Meteorological Standards

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EMERGENCY MANAGEMENT ISSUES

ANSI/ANS STRUCTURE

- American National Standards Institute (ANSI)
- ANS (SDO) Standards Committee
- ANS Nuclear Facilities Standards Committee (NFSC): 68 Voluntary Consensus Standards/Standards Projects
- Seven NFSC Subcommittees
  - ANS-21: Maintenance, Operations, Testing & Training (9 Active/4 Projects)
  - ANS-22: Systems Design Criteria (12 Active/4 Projects)
  - **ANS-24: Modeling & Analysis (3 Active/8 Projects)**
  - **ANS-25: Siting: Environmental & Emergency Preparedness (2 Active/15 Projects)**

ANS SDO STRUCTURE

- ANS Nuclear Facilities Standards Committee (NFSC)
  - ANS-27: Fuel Cycle, Waste Management & Decommissioning (6 Active/4 Projects)
  - ANS-28: HTGR Design Criteria (0 Active/1 Project)
  - ANS-29: Advanced Initiatives (Gen III-A/IV; GNEP) (0 Active/0 Projects)

ANS-24 METEOROLOGICAL STANDARDS

- ANS-24 Meteorological Standards
  - ANSI/ANS-2.15, *Criteria for Modeling and Calculating Atmospheric Transport of Routine Releases from Nuclear Facilities*
  - ANSI/ANS-2.16, *Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities*
  - ANSI/ANS-3.8.10*, Criteria for Modeling Real-Time Releases at Nuclear Facilities*

ANS-25 METEOROLOGICAL STANDARDS

- ANS-25 Meteorological Standards
  - ANSI/ANS-2.3, *Determining Tornado and Other Extreme Wind Characteristics at Nuclear Facility Sites*
  - ANSI/ANS-2.21, *Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink*
  - ANSI/ANS-3.11 (2005), *Determining Meteorological Information at Nuclear Facilities*

ANS-25 STANDARDS THAT ADDRESS OTHER ENVIRONMENTAL AND EMERGENCY PREPAREDNESS DISCIPLINES

- **ANSI/ANS-2.2**,*Earthquake Instrumentation Criteria for Nuclear Power Plants* (Active)
- **ANSI/ANS-2.6**,*Guidelines for Estimating Present and Forecasting Future Population Distributions Surrounding Power Reactor Sites* (PINS under development)
- **ANSI/ANS-2.8**,*Determining Design Basis Flooding at Power Reactor Sites* (Seeking Chairperson)
- **ANSI/ANS-2.9**, *Evaluation of Ground Water Supply for Nuclear Facilities (*WG developing draft*)*
- **ANSI/ANS-2.17**, *Evaluation of Radionuclide Transport in Ground Water for Nuclear Facilities (*WG developing draft*)*
- **ANSI/ANS-2.18**, *Standards for Evaluating Radionuclide Transport in Surface Water for Nuclear Power Sites (*Seeking Chairperson*)*

ANS-25 STANDARDS THAT ADDRESS OTHER ENVIRONMENTAL AND EMERGENCY PREPAREDNESS DISCIPLINES (CONTINUED)

- **ANSI/ANS-2.22**, *Environmental Radiological Monitoring at Nuclear Facilities (WG developing draft)*
- **ANSI/ANS-2.25**, *Surveys of Terrestrial Ecology Needed to License Thermal Power Plants* (Seeking Chairperson)
- **ANSI/ANS-2.27**, *Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments (Draft in NFSC review)*
- **ANSI/ANS-2.29**, *Probabilistic Seismic Hazard Analysis (WG developing 6th draft)*
- **ANSI/ANS-2.30**, *Assessing Capability for Surface Faulting at Nuclear Facilities (PINS approved)*
- **ANSI/ANS-3.8.1**, *Criteria for Radiological Emergency Response Functions and Organizations* (Seeking Chairperson)

ANS-25 STANDARDS THAT ADDRESS OTHER ENVIRONMENTAL AND EMERGENCY PREPAREDNESS DISCIPLINES (CONTINUED)

- **ANSI/ANS-3.8.3**, *Criteria for Establishing Radiological Emergency Response Plans and Implementing Procedures* (Seeking Chairperson)
- **ANSI/ANS-3.8.6**, *Criteria for the Conduct of Offsite Radiological Assessment for Emergency Response for Nuclear Power Plants* (Seeking Chairperson)
- **ANSI/ANS-3.8.7**, *Criteria for Planning, Development and Conduct of Offsite Radiological Assessment for Emergency Response for Nuclear Power Plants* (Seeking Chairperson)
- **ANSI/ANS-16.1**, *Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure* (Active)
- **ANSI/ANS-40.21**, *Siting and Operating Commercial Burial Grounds (PINS under development)*

ANSI/ANS-3.11

- DMCC and NUMUG Joint Venture
- Initiated at June 1996 ANS Reno Meeting
- Stan Marsh (SCE) and Carl Mazzola (Shaw Environmental) Co-chairs
- Developed by WG of 30 SMEs
- Active WG Involvement by NRC, DOE, NNSA, and EPA
- Standard Issued February 16, 2000
- ANS' Best-Selling Standard (2000-2002; 2006)

ANSI/ANS-3.11

- Pending December 2005 Sunset
- Reaffirmation, Revision or Withdrawal Decision
- 2002 Questionnaire to WG Supported Revision
- Need to Address Advances in In Situ and Remote Sensing and Improvements in Quality Assurance
- WG Approved Development of Revision at 2003 DMCC Meeting
- Revised Standard
  - ANSI Approval: December 2005
  - Issued: June 2006

ANSI/ANS-3.11 MAJOR REVISIONS

- Added Sensor Accuracy and Stability Class Definitions
- Generic Supplemental Measurements Discussion
- Revised Specifications for Winds, Solar and Net Radiation, and Barometric Pressure
- Introduced New Accuracy Calculation Methodology
- Required Calibrations to be Part of System's Quality Assurance Program
- Added Calibration Requirements
- Made Numerous Editorial and Clarity Revisions

METEOROLOGICAL APPLICATIONS STANDARD DEVELOPMENT INITIATIVE

- January 2004: Pursue Development of Additional Standards Related to Application of Meteorological Data
- February 2004: Reinvigorated 4 Abandoned Standards from Early 1980s.
- March 2004: Carl Mazzola and Doyle Pittman (TVA) Appointed Co-chairs
- July 2004: PINS for ANSI/ANS-2.15, -2.16, and -2.21 Sent to NFSC
- August 2004: Determined ANSI/ANS-3.8.10 Needed for Real-Time Transport and Dispersion Modeling

METEOROLOGICAL APPLICATIONS STANDARD DEVELOPMENT INITIATIVE (CONTINUED)

- Sept 2004: 20-member SME WG Established
- Nov 2004: ANSI/ANS-2.15 WG Kickoff Meeting
- PINS Approved for all 4 Standards Projects
- April 2007: Cliff Glantz (PNNL) Replaced Carl Mazzola as Co-Chair
- April 2007: WG Draft of ANSI/ANS-2.15 Almost Ready for Review
- Other Three Standards Will Follow
- Need More SMEs for ANSI/ANS-2.21

ANSI/ANS-2.15, -2.16, -2.21, -3.8.10 WORKING GROUP MEMBERS

Mark Abrams	ABS Group
Tom Bellinger	BWXT Y-12
Chris Cook	PNNL
Jim Fairobent	NNSA/NA-41
Cliff Glantz	PNNL
Brad Harvey	NRC NRR
Chuck Hunter	SRNL
Marsha Kinley	Duke Power
Joe Laznow	Consultant
Y J Lin	Bechtel
Ed McCarthy	PG&E
John Nasstrom	LLNL NARAC
Kevin O'Kula	WSMS
Darryl Randerson	NOAA ARL/SORD
Ali Simpkins	Formerly of SRNL
Steve Vigeant	Shaw Environmental
Ping Wan	Bechtel
Ken Wastrack	TVA

ANSI/ANS-2.15 DESCRIPTION

Criteria for Modeling and Calculating Atmospheric Transport of Routine Releases from Nuclear Facilities

- To establish criteria for use of meteorological data collected at nuclear facilities to evaluate the atmospheric effects on routine radioactive releases, inclusive of dilution, dispersion, plume rise, plume meander, aerodynamic effects of buildings, dry deposition, and wet deposition (e.g., precipitation scavenging).
- ANSI/ANS-3.11 (2005), R. G. 1.111, ANSI/ANS 5.10, ANSI/ANS-18.1

ANSI/ANS-2.16 DESCRIPTION

Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities

- To establish criteria for use of meteorological data collected at nuclear facilities to evaluate the atmospheric effects on accidental radioactive and hazardous chemical releases, inclusive of dilution, dispersion, plume rise, plume meander, aerodynamic effects of buildings, dry deposition, and wet deposition (e.g., precipitation scavenging)
- ANSI/ANS-3.11 (2005), ANSI/ANS-3.8.6 (1995), ANSI/ANS-5.4, ANSI/ANS-5.10, ANSI/ANS 58.8, RG 1.78, RG 1.145, and RG 1.194
- WG decided to separate design basis and emergency applications into two standards

ANSI/ANS-2.21 DESCRIPTION

Criteria for Assessing Atmospheric Effects on the Ultimate Heat Sink

- To establish criteria for use of meteorological data collected at nuclear facilities to evaluate the atmospheric effects on ultimate heat sink performance.
- ANSI/ANS-3.11 (2005), R.G. 1.27

ANSI/ANS-3.8.10 DESCRIPTION

Criteria for Modeling Design-Basis Accidental Releases from Nuclear Facilities Under Emergency Conditions

- To establish criteria for use of meteorological data collected at nuclear facilities to evaluate the atmospheric effects on accidental radioactive and hazardous chemical releases, inclusive of dilution, dispersion, plume rise, plume meander, aerodynamic effects of buildings, dry deposition, and wet deposition (e.g., precipitation scavenging)
- ANSI/ANS-3.11 (2005), NUREG-0654; DOE Order 151.1C; Consequence Assessment Emergency Management Guide (12/20/05 Draft)

ANSI/ANS-2.3 DESCRIPTION

Standard for Estimating Tornado, Hurricane and Extreme Straight Wind Characteristics at Nuclear Facility Sites

- To establish criteria for use of meteorological data to evaluate the effects of extreme winds on nuclear facility design.
- ANSI/ANS-3.11 (2005), R.G. 1.76
- PNNL (Ramsdell) and LLNL (Hossein) Tornado NUREG/CRs

ANSI/ANS-2.3 Working Group Members

John Stevenson (Chairman)	J. Stevenson and Associates
Carl Mazzola	Shaw Environmental
Brad Harvey	NRC NRR
Jeff Kimball	NNSA
Emil Simiu	NIST
Mo Amin	Sargent & Lundy Engineers
Antonio Godoy	IAEA
Quazi Hossein	LLNL
Jim McDonald	Consultant
Art Buslick	NRC

ANSI/ANS-2.3

- Objective: Reconcile Different DOE and NRC Methodologies using PNNL and NRC Technical Reports as Technical Bases
- Address Straight Line Winds as well as Tornadic Winds and Pressure Drops
- Incorporate New Enhanced Fujita Scale (EFS) Ranges
- Incorporate new Information Learned from 2005 Category V Hurricanes Katrina, Rita and Wilma
- Draft for Consensus Review by Fall 2007

HOW TO PURCHASE AN ANS STANDARD?

- ANS Store: http://www.ans.org/store/vc-stnd
- Sue Cook/ANS Order Department: scook@ans.org
- For standards information contact ANS Administrator, Pat Schroeder: pschroeder@ans.org

HOW TO VOLUNTEER?

- Send to any of the following:
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