



# ***ANS METEOROLOGICAL MONITORING AND DISPERSION STANDARDS***

**18<sup>th</sup> DOE Meteorological Coordinating Council Meeting  
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# ANS VOLUNTARY CONSENSUS STANDARDS

- **Legislative Driver**
  - National Technology Transfer and Advancement Act (1995)
- **Executive Drivers**
  - OMB Circular A-119
  - NRC Management Directive 6.5
  - DOE Technical Standards Project Office
- **ANS is an ANSI-accredited Standards Development Organization (SDO)**
- **Other ANSI-accredited SDOs**
  - ASME                      IEEE                      ACI
  - ASTM                      ASQC



# ANS STANDARDS ORGANIZATION

- **ANS Standards Administrator**
- **Standards Board**
- **Consensus Committees**
  - **NFSC**: Siting, design, and operation of nuclear facilities (other than N17), including radwaste management, site remediation and restoration
  - **N16**: Nuclear criticality safety
  - **N17**: Research reactors, reactor physics, radiation shielding, & computational methods
  - **RISC**: Criteria and methods for risk assessment and risk management as applied to design and operation of nuclear facilities, including radwaste management, site remediation and restoration



# NFSC SUBCOMMITTEES

- **ANS-21: Maintenance, Operations, Testing & Training**
- **ANS-22: Systems Design Criteria**
- **ANS-24: Modeling & Analysis**
- **ANS-25: Environmental**
- **ANS-26: Emergency Preparedness**
- **ANS-27: Fuel Cycle, Waste Management & Decommissioning**
- **ANS-28: HTGR Design Criteria**
- **ANS-29: Advanced Initiatives (Gen IIIA/IV, GNEP)**

# TYPES OF ANS METEOROLOGICAL STANDARDS

- **ANS-2: Siting (NFSC)**
- **ANS-3: Operations (NFSC)**
- **ANS-58: PRA (RISC)**



# SITING METEOROLOGICAL STANDARDS

- **ANSI/ANS-2.3-2011:** Standard for Estimating Tornado, Hurricane and Extreme Straight-Line Wind Characteristics at Nuclear Facility Sites
- **ANS-2.15:** Criteria for Modeling & Calculating Atmospheric Transport of Routine Releases from Nuclear Facilities
- **ANS-2.16:** Criteria for Modeling & Calculating Atmospheric Transport of Accident Releases from Nuclear Facilities
- **ANS-2.21:** Criteria for Assessing Atmospheric Effects On the Ultimate Heat Sink
- **ANS-2.31:** Standard for Estimating Extreme Precipitation at Nuclear Facility Sites



# OPERATIONAL METEOROLOGICAL STANDARDS

- **ANSI/ANS-3.8.7(1995W)**: Criteria for Planning, Development, Conduct, and Evaluation of Drills and Exercises for Emergency Preparedness at Nuclear Facilities
- **ANS-3.8.10**: Criteria for Modeling Real-time Accidental Release Consequences at Nuclear Facilities
- **ANSI/ANS-3.11(2010)**: Determining Meteorological Information at Nuclear Facilities

# PRA METEOROLOGICAL STANDARD

- **ANS-58.25:** American National Standard Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications

# ANSI/ANS-2.3

- **Purpose:** Establish guidelines to estimate occurrence frequency & magnitude of parameters associated with rare meteorological events (e.g., tornadoes, hurricanes, extreme straight winds) at nuclear facility sites within contiguous United States
- **WG:** John Stevenson (Chairman), Mo Amin, Antonio Godoy, Tom Grazulis, Brad Harvey, Quazi Hossain, Carl Mazzola, Jim McDonald, Emil Simiu
- **Application:** NRC RG 1.76, DOE-STD-1020, DOE G 420.1-2
- **Status:** Approved by NFSC and ANSI. To be released Summer 2011

# ANS-2.15

- **Purpose:** To provide criteria to be used for assessing atmospheric transport, dispersion, and deposition of routine releases from nuclear facilities
- **WG:** John Ciolek (Chairman), Ken Wastrack, Chuck Hunter, Mark Carroll, Ping Wan, Jim Fairobent, Marsha Kinley, Cliff Glantz, Brad Harvey, Alex Kasprak, Ed McCarthy, Tom Bellinger, Roger Brode, Y. J. Lin, Matt Parker, Carl Mazzola, Ali Simpkins, Doyle Pittman
- **Application:** RG 1.111
- **Status:** In ANS-24 consensus review

## ANS-2.16

- **Purpose:** To provide criteria to be used for assessing atmospheric transport, dispersion, and deposition of accident releases from nuclear facilities
- **WG:** John Ciolek (Co-Chairman), Jeremy Rishel (Co-Chairman), Ken Wastrack, Chuck Hunter, Mark Carroll, Ping Wan, Jim Fairobent, Marsha Kinley, Cliff Glantz, Brad Harvey, Alex Kasprak, Ed McCarthy, Tom Bellinger, Roger Brode, Y. J. Lin, Matt Parker, Carl Mazzola, Ali Simpkins, Doyle Pittman
- **Application:** RG 1.145
- **Status:** WG initiated efforts now that ANS-2.15 reached ANS-24 consensus review. New co-chairman

# ANS-2.21

- **Purpose:** To describe atmospheric effects to be considered when designing ultimate heat sinks for nuclear power generation facilities.
- **WG:** Steve Vigeant (Chairman), Al Garrett, Chris Cook, Rob Kannor, Matt Parker, Brad Harvey, Steve Gardocki
- **Application:** RG 1.27
- **Status:** In NFSC consensus review. Publication expected in fall 2011

# ANS-2.31

- **Purpose:** To establish guidelines to estimate occurrence frequency & magnitude of parameters associated with extreme precipitation events at nuclear facility sites within contiguous United States
- **WG:** John Stevenson (Chairman), Brad Harvey, Walt Schalk, Quazi Hossain, Carl Mazzola, others TBD
- **Application:** NUREG-0800 Section 2.3, DOE-STD-1020, DOE G 420.1-2
- **Status:** PINS filed and WG being populated

# ANSI/ANS-3.8.7

- **Purpose:** To establish criteria for administration of radiological emergency response drills & exercises in support of emergency preparedness at nuclear facilities
- **WG:** Ron Markovich (Chairman), Marty Hug, Randy Sullivan, Dick Stuhler, Bill Hawkins, Steve Lockett, INPO Liaison, others TBD
- **Application:** NUREG-0654, DOE O 151.1C, DOE G 151.1-series
- **Status:** Reinvigoration of historical standard (1995). PINS filed, WG being populated, first WG meeting September 2010

## ANS-3.8.10

- **Purpose:** To provide criteria to be used for assessing real-time atmospheric transport, dispersion, and deposition of accident releases from nuclear facilities
- **WG:** John Ciolek (Chairman), Ken Wastrack, Chuck Hunter, Mark Carroll, Ping Wan, Jim Fairobent, Marsha Kinley, Cliff Glantz, Brad Harvey, Alex Kasprak, Ed McCarthy, Tom Bellinger, Roger Brode, Y. J. Lin, Matt Parker, Carl Mazzola, Ali Simpkins, Doyle Pittman
- **Application:** NUREG-0654, DOE O 151.1C, DOE G 151.1-series
- **Status:** WG will begin work after ANS-2.16 reaches ANS-24 consensus review

# ANSI/ANS-3.11

- **Purpose:** To provide criteria for gathering & assembling meteorological information at commercial nuclear electric generating stations, DOE nuclear facilities, and other national or international nuclear facilities
- **WG:** Matt Parker (Chairman), Stan Marsh, Carl Mazzola, Jim Fairobent, 27 others
- **Application:** RG 1.23 Revision 1, DOE/EH-0173T, DOE O 458.1
- **Status:** Reaffirmed in 2010 with a December 2015 sunset. WG to address revision no later than 2013

# ANS-58.25

- **Purpose:** To set forth requirements for consequence analysis part of PRAs used to support risk-informed decisions for accidents involving release of radioactive materials into atmosphere
- **WG:** Keith Woodard (Chairman), Nate Bixler, Sara Chisholm, Dave Johnson, Carl Mazzola, Jocelyn Mitchell (passed away), Vinod Mubayi, Kevin O’Kula, Don Paul, Grant Teagarden
- **Application:** Level III PRAs for existing and Gen-III nuclear power generation facilities
- **Status:** WG draft received over 200 comments from RISC consensus review