

## **30<sup>th</sup> Nuclear Air Cleaning Conference**

### **ASME Committee on Nuclear Air & Gas Treatment (CONAGT)**

#### **Codes & Standards Developments**

##### Background

Air cleaning standards have been in existence for many years. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) and the National Bureau of Standards were actively engaged in developing and producing such documents applicable to commercial and industrial air cleaning equipment and systems. The Department of Defense published standards and specifications for air cleaning protection equipment and systems for military use. In the late 1960's, when the nuclear power generation industry became a reality, there were no specific codes or standards available covering air cleaning equipment and testing of the unique systems that were required to protect both plant personnel and the general public from potential radiological hazards.

In early 1971, the then Atomic Energy Commission staff met with a number of suppliers and engineers to review the various factors that affect the design of power plant systems, particularly standby gas treatment systems of boiling water reactors. Out of these meetings came a recommendation to form a group to prepare a standard covering the design, installation, maintenance and testing of standby gas treatment systems. The ANSI N45-8 Committee was established and assigned to ASME. Over the next couple of years, standards development activities recognized the need to expand the scope to include all nuclear air and gas treatment equipment and systems. In 1975, the ASME elected to transfer the responsibility to the Nuclear Codes and Standards supervision, now the Board on Nuclear Codes and Standards (BNCS).

##### Codes & Standards

The Committee on Nuclear Air and Gas Treatment (CONAGT) came into existence with the scope to prepare codes and standards for all engineered safety features air and gas treatment equipment and systems. The primary document that would contain these requirements was labeled the AG-1 Code. The Code contains a number of sections that provide requirements for the specific components used in air cleaning systems and the general requirements for all components and systems.

## CONAGT Codes & Standards Developments

The current edition of the AG-1 Code is separated into 4 Divisions and 36 Sections:

- Division I    General Requirements
  - Section AA    Common Articles
  
- Division II    Ventilation Air Cleaning and Ventilation Air Conditioning
  - Section BA    Fans & Blowers
  - Section DA    Dampers & Louvers
  - Section SA    Ductwork
  - Section HA    Housings
  - Section RA    Refrigeration Equipment
  - Section CA    Conditioning Equipment
  - Section FA    Moisture Separators
  - Section FB    Medium Efficiency Filters
  - Section FC    HEPA Filters
  - Section FD    Type II Adsorbers
  - Section FE    Type III Adsorbers
  - Section FF    Adsorbent Media
  - Section FG    Mounting Frames
  - Section FH    Other Adsorbers
  - Section FI    Metal Media Filters (In course of preparation)
  - Section FJ    Low Efficiency Filters (In course of preparation)
  - Section FK    Special HEPA Filters
  - Section FL    Sand Filters (In course of preparation)
  - Section FM    High Strength HEPA Filters (In course of preparation)
  - Section IA    Instrumentation & Controls
  
- Division III    Process Gas Treatment
  - Section GA    Pressure Vessels, Piping, Heat Exchangers, and Valves for Gas Process Equipment (In course of preparation)
  - Section GB    Noble Gas Hold-up Equipment (In course of preparation)
  - Section GC    Compressors & Blowers (In course of preparation)
  - Section GD    Instrumentation for Gas Process Equipment (In course of preparation)
  - Section GE    Hydrogen Recombiners (In course of preparation)
  - Section GF    Gas Sampling (In course of preparation)
  - Section GG    Scrubbers (In course of preparation)
  - Section GH    Cyclones (In course of preparation)
  - Section GI    Membranes (In course of preparation)
  - Section GJ    Gas Filters (In course of preparation)
  - Section GK    Mist Eliminators (In course of preparation)
  - Section GL    Electrostatic Precipitators (In course of preparation)
  - Section GM    Adsorbent Media for Gas Processing (In course of preparation)
  
- Division IV    Testing Procedures
  - Section TA    Testing of Air Treatment Systems
  - Section TB    Testing of Gas Process Systems (In course of preparation)

In addition to the AG-1 Code, there are three other major ASME standards that are applicable to the design and testing of air cleaning systems that CONAGT maintains:

## CONAGT Codes & Standards Developments

ASME N509 Nuclear Power Plant Air-Cleaning Units and Components  
ASME N510 Testing of Nuclear Air Treatment Systems  
ASME N511 In-Service Testing of Nuclear Air Treatment, Heating, Ventilating, and Air Conditioning Systems

The AG-1 Code essentially replaces ASME N509 for component design and ASME N510 for system and component acceptance testing. However, these documents are maintained and continued to be published for older power plants that were designed to the prior ASME N509 standards and currently tested following the applicable requirements on ASME N510. A new standard covering inservice testing of systems and components, ASME N511, was published in 2007.

### CONAGT Panel Discussion Agenda

Several current topics and new codes & standards publications on nuclear air treatment equipment and systems have been selected for presentation and discussion. Key members of the ASME Committee on Nuclear Air & Gas Treatment (CONAGT) will provide a brief presentation of these topics and will lead discussions and provide responses to any questions.

Panel Moderator	Tom Vogan	Chairman CONAGT Standards Committee
Carbon Qualification and Testing	Ben Franklin	Chairman Subcommittee General Support Services
Coordination of ASME N511 - Inservice Testing of Air Cleaning Equipment with ASME N510 Qualification Testing	Wally Wikoff	Chairman Subcommittee Field Testing
Division III - Gas Process Treatment Developments	Walt Drosjack	Chairman Subcommittee Gas Process Treatment
Emerging Technologies	Eric Banks	Chairman Subcommittee Technology
Regulatory Endorsement of ASME AG-1, N509, N510 and N511	Jerry Bettle	US NRC Representative
Inquiries and Code Case Administration	Oliver Martinez	ASME Staff

## CONAGT Codes & Standards Developments

At panel sessions such as this, audience participation is encouraged and feedback on the quality of the Code and Standards and needs of the user is solicited. At past presentations and panel sessions by CONAGT, users identified the need or standards or criteria for specific equipment. As a result this feedback, the Committee has undertaken the development of additional AG-1 Code sections and new Standards development.