



# The Role of ASME Certification in the Nuclear Power Industry

# ASME at a Glance

- » ASME was founded in 1880
- » First standard issued in 1884
- » 400 employees
- » Membership: 140,000 members with over 200 local sections and 500 student sections in over 150 countries
- » 36 technical divisions and specialty institutes
- » ASME offers more than 200 courses and trains thousands of people each year
- » Publish multiple technical journals and books
- » Sponsor many technical conferences
- » ASME develops Codes and Standards and has Conformity Assessment programs for the nuclear and many other industries

## Offices:

New York

Washington DC

Little Falls, NJ

Houston

Brussels

Beijing

New Delhi

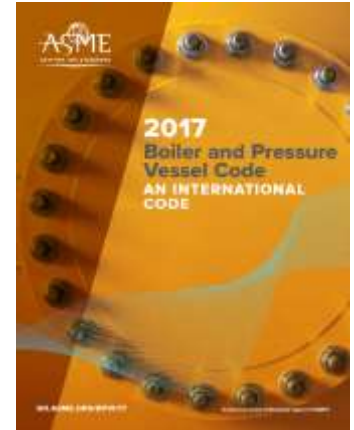
# Understanding the Market

- » Nuclear power plants provide 11% of the world's electricity production (19% in the U.S.)
- » 13 countries rely on nuclear energy to supply at least one-quarter of their total electricity
- » Globally there are over 449 operating nuclear power reactors
- » 60 nuclear plants are under construction worldwide in 15 countries
- » Many units are in the planning phase



# ASME Boiler & Pressure Vessel Code

- » Covers industrial and residential boilers, pressure vessels, nuclear reactor components, and transport tanks
- » Is Comprehensive - provides rules for materials, design, fabrication, examination, inspection, testing, certification, and pressure relief
- » Is Dynamic – evolves and changes to reflect new technology and industry needs
- » A Conformity Assessment program is written into the code to assure compliance



# Nuclear Codes and Standards



# Boiler and Pressure Vessel Code Sections

- » Section I - Power Boilers
- » **Section II - Materials**
- » **Section III - Rules for Construction of Nuclear Facility Components**
- » Section IV - Heating Boilers
- » **Section V - Nondestructive Examination**
- » Section VI - Recommended Rules for the Care and Operation of Heating Boilers
- » Section VII - Recommended Guidelines for the Care of Power Boilers
- » Section VIII Pressure Vessels
- » **Section IX - Welding and Brazing Qualifications**
- » Section X - Fiber-Reinforced Plastic Pressure Vessels
- » **Section XI - Rules for Inservice Inspection of Nuclear Power Plant Components**
- » Section XII - Rules for the Construction and Continued Service of Transport Tanks

# ASME Nuclear Codes & Standards

- » NQA-1 - Quality Assurance Requirements for Nuclear Facility Applications
- » OM - Code for Operation and Maintenance of Nuclear Power Plants
- » QME-1 - Qualification of Active Mechanical Equipment used in Nuclear Power Plants
- » RA-S - Probabilistic Risk Assessment for Nuclear Power Plant Applications (PRA)
- » Nuclear Air and Gas Treatment
  - Code on Nuclear Air and Gas Treatment (AG-1)
  - In-Service Testing of Nuclear Air Treatment, Heating, Ventilating, and Air Conditioning Systems (N511)
- » Cranes in Nuclear Plants
  - Rules for Construction of Overhead and Gantry Cranes (NOG-1)
  - Rules for Hoisting, Rigging, and Transporting Equipment for Nuclear Facilities (HRT-1)
  - Rules for Construction of Cranes, Monorails, and Hoists (NUM-1)



# ASME's Certification Programs



# Quality Assurance Programs



# 7,335 Certified Companies 12,985 Active Certificates Globally



# Nuclear Component Certification

## *Conformity Assessment*

Conformity Assessment Program recognizing a company's capability to meet and fulfill the specific requirements of Section III Rules for Construction of Nuclear Facility Components of the ASME Boiler and Pressure Vessel Code for items installed in nuclear facilities.

# Nuclear Component Certification

## Scope of Code Activities

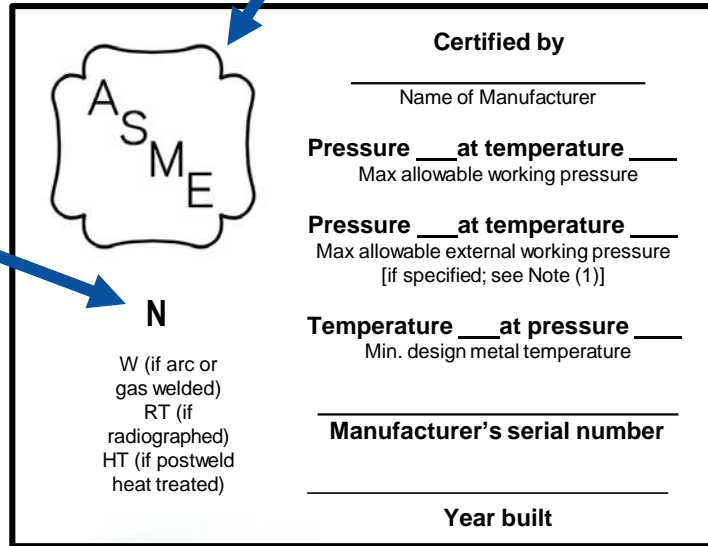
<b>N</b>	Construction of vessels, pumps, valves, piping systems, storage tanks, core support structures, concrete containments, and transport packaging
<b>NA</b>	Field installation and shop assembly of parts and components
<b>NPT</b>	Fabrication of parts, appurtenances, welded tubular products, and piping subassemblies
<b>NS</b>	Fabrication of supports
<b>NV</b>	Construction of pressure relief valves
<b>N3</b>	Construction of transportation and storage containments
<b>OWN</b>	Authorization for the Owner of a Nuclear Facility to prepare and file the data report on the completed pressure retaining system.

# The International Mark of Quality

## *What to Look for?*

### Certification Mark

### Certification Designator



The diagram shows a rectangular box representing the ASME Certification Mark form. On the left side of the box is the ASME logo, which consists of the letters 'A', 'S', 'M', and 'E' arranged in a grid within a decorative, cloud-like border. Below the logo is the letter 'N'. To the right of the logo and 'N' are several fields for certification details. Two blue arrows point from the text 'Certification Mark' and 'Certification Designator' to the ASME logo and the letter 'N' respectively.

**ASME**

**N**

W (if arc or gas welded)  
RT (if radiographed)  
HT (if postweld heat treated)

**Certified by**  
\_\_\_\_\_  
Name of Manufacturer

**Pressure \_\_\_ at temperature \_\_\_**  
Max allowable working pressure

**Pressure \_\_\_ at temperature \_\_\_**  
Max allowable external working pressure  
[if specified; see Note (1)]

**Temperature \_\_\_ at pressure \_\_\_**  
Min. design metal temperature

\_\_\_\_\_  
**Manufacturer's serial number**  
\_\_\_\_\_

**Year built**  
\_\_\_\_\_

# Nuclear Component Certification

*“The ASME Certificates and Certification Mark provides a recognized level of assurance to customers and regulators that the Quality Assurance Program and products meet an industry standard of excellence.”*

Lisa Plante  
Supervisor, Quality Systems,  
Westinghouse Electric Company

# Nuclear Product Certification

## *Benefits to Certificate Holders*

- » Increases quality, reliability and safety of products entering the supply chain.
- » Levels the playing field and removes barriers to trade.
- » Increases production efficiencies.
- » Use of the ASME Certification Mark signifies to your customers conformance to the standard.

# NQA-1 Program Certification

- » The NQA-1 Certification Program is for all safety related items in nuclear facilities that are outside of the pressure boundary.
- » Provides recognition that its quality assurance program is in conformance with the requirements of the ASME NQA-1 Standard.
- » The NQA-1 Advertising Symbol is available to organizations that have achieved ASME certification.







THANK YOU FOR YOUR ATTENTION

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