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We speak to Karl Eder, ASME Services Manager and expert at LRQA, about what the update means for industry and how organisations can prepare. The objectives of the 2025 update are clear: to enhance clarity, consolidate key requirements and strengthen the emphasis on performance-based expectations across several sections. These changes are designed to improve usability, reduce ambiguity and support safer, more consistent applications of the code. For engineering, quality and inspection teams, this means reviewing internal practices, design documentation and compliance strategies to ensure alignment with the updated code structure and requirements. A clearer code with significant operational impact The ASME BPVC is used in over 100 countries and underpins more than 11,500 certifications globally. It forms the backbone of safety assurance in sectors such as energy, aerospace and heavy industry. Its complexity has long been a challenge. Previous updates, including those in 2019 and 2021, introduced structural and editorial changes aimed at modernising and simplifying key requirements, but these also created challenges in interpretation and implementation. For example, the 2019 edition's restructuring of Section VIII, Division 2 introduced new design-by-analysis rules, which led many organisations to increase training and update procedures. Similarly, updates to material specifications and non-destructive examination (NDE) guidance required revisions to quality management systems and supplier documentation. The 2025 edition continues ASME's efforts to modernise and improve usability. Key areas of focus include efforts to clarify vessel-specific requirements, streamline certification criteria for design professionals, and refine guidance on material stress and fatigue analysis in nuclear applications. The updated code also introduces clearer distinctions between requirements for in-service examinations and construction-related inspections. These changes are not just editorial. They affect how organisations design, inspect and certify equipment, and how both manufacturers and inspection bodies define and demonstrate technical competence. "This is about more than updated language. It is a shift in how the code is applied, requiring teams to review their systems and practices in light of the new structure and intent," says Karl. Learning from the past to prepare for the future Looking back, one of the most cited challenges from previous BPVC revisions has been the lag in awareness and understanding. Experience from recent ASME BPVC revisions has shown that many organisations encounter challenges interpreting structural updates and navigating changes in code layout without external guidance. These insights appear to have informed the 2025 update, which focuses heavily on readability and logic in layout. But change fatigue is real. Engineering teams are often managing concurrent compliance obligations across ISO, API and other regional codes. As a result, early planning is essential. Organisations that successfully navigated past revisions typically: Established a dedicated task force to review the redline or preview editions Initiated training ahead of formal adoption to reduce disruption Conducted internal gap assessments against new requirements Engaged with third-party inspectors to test interpretation and application These approaches will remain critical in 2025, especially with updates that alter how personnel competence is defined and verified. The path forward The priority for organisations is clear: understand the changes introduced in the 2025 edition, assess how they affect operations and take steps to align with best practice. Karl concludes, "The ASME BPVC continues to evolve in support of safer, clearer and more consistent engineering outcomes. Staying informed and engaged is key to making the most of what the latest edition offers." Organisations are encouraged to review preview materials, attend code update briefings and collaborate across teams to ensure a smooth transition. ASME's BPVC standards provide the single largest source of technical data used in the manufacturing, construction, and operation of boilers and pressure vessels. Fueled by the foresight of leading industry experts, the BPVC standards are designed to meet the needs of a changing world. The rapid evolution of technology requires careful monitoring. As new materials, products, systems, and services arise, ASME, works with leading experts across industry to update its Boiler and Pressure Vessel Code, releasing a new edition every two years. Learn about our past, present, and future versions of this ever-evolving set of standards. The ASME - American Society of Mechanical Engineers - International Boiler and Pressure Vessel Code (BPVC) is made of 11 sections and contains over 15 divisions and subsections. Code Sections I. Power Boilers II. Materials III. Rules for Construction of Nuclear Facility Components IV. Heating Boilers V. Nondestructive Examination VI. Recommended Rules for the Care and Operation of Heating Boilers VII. Recommended Guidelines for the Care of Power Boilers VIII. Pressure Vessels IX. Welding and Brazing Qualifications X. Fiber-Reinforced Plastic Pressure Vessels XI. Rules for In-service Inspection of Nuclear Power Plant Components XII. Rules for Construction and Continued Service of Transport Tanks I. Power Boilers This Section provides requirements for all methods of construction of power, electric, and miniature boilers; high temperature water boilers used in stationary service; and power boilers used in locomotive, portable, and traction service. Requirements for: Boilers Fabricated by Welding; Boilers Fabricated by Riveting (by reference only); Watertube Boilers; Firetube Boilers; Feedwater Heaters; Miniature Boilers; Electric Boilers; Organic Fluid Vaporizer Generators. This section provides requirements for all methods of construction of power, electric, and miniature boilers; high temperature water boilers used in stationary service; and power boilers used in locomotive, portable, and traction service. The rules are applicable to boilers in which steam or other vapor is generated at a pressures exceeding 15 psig, and high temperature water boilers intended for operation at pressures exceeding 160 psig and or temperatures exceeding 250 degree F. Superheaters, economizers, and other pressure parts connected directly to the boiler without intervening valves are considered as part of the scope of Section 1. II. Materials Part A-Ferrous Material Specifications Part B-Nonferrous Material Specifications Part C-Specifications for Welding Rods, Electrodes, and Filler Metals Part D-Properties III. Rules for Construction of Nuclear Facility Components Subsection NCA - General Requirements for Divisions 1 and 2 DIVISION 1 Subsection NB- Class 1 Components Subsection NC- Class 2 Components Subsection ND- Class 3 Components Subsection NE- Class MC Components Subsection NF - Supports Subsection NG - Core Support Structures Subsection NH - Class 1 Components in Elevated Temperature Service DIVISION 2 Code for Concrete Containments DIVISION 3 Containments for Transportation and Storage IV. Heating Boilers This Subsection provides requirements for design, fabrication, installation and inspection of steam generating boilers, and hot water boilers intended for low pressure service that are directly fired by oil, gas, electricity, or coal. It contains appendices which cover approval of new material, methods of checking safety valve and safety relief valve capacity, examples of methods of checking safety valve and safety relief valve capacity, examples of methods of calculation and computation, definitions relating to boiler design and welding, and quality control systems. V. Nondestructive Examination Requirements and methods for nondestructive examination which are referenced and required by other code Sections. It also includes manufacturer's examination responsibilities, duties of authorized inspectors and requirements for qualification of personnel, inspection and examination. Examination methods are intended to detect surface and internal discontinuities in materials, welds, and fabricated parts and components. A glossary of related terms is included. VI. Recommended Rules for the Care and Operation of Heating Boilers General descriptions, terminology and operation guidelines applicable to steel and cast iron boilers limited to the operating ranges of Section IV Heating Boilers. It includes guidelines for associated controls and automatic fuel burning equipment. Illustrations show typical examples of available equipment. Also included is a glossary of terms commonly associated with boilers, controls, and fuel burning equipment. VII. Recommended Guidelines for the Care of Power Boilers Guidelines to promote safety in the use of stationary, portable, and traction type heating boilers. The section provides guidelines to assist operators of power boilers in maintaining their plants as safely as possible. Emphasis has been placed on industrial-type boilers because of their extensive use. Contains Fuels for Routine Operation; Operating and Maintaining Boiler Appliances; Inspection; Prevention of Direct Causes of Boiler Failure; Design of Installation; Operation of Boiler Auxiliaries; Control of Internal Chemical Conditions VIII. Pressure Vessels Division 1 - Provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures exceeding 15 psig. Division 3 - Alternative Rules for Construction of High Pressure Vessels, provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures generally above 10,000 psi. IX. Welding and Brazing Qualifications Rules relating to the qualification of welding and brazing procedures as required by other Code Sections for component manufacture. Covers rules relating to the qualification and re-qualification of welders, brazers, and welding and brazing operators in order that they may perform welding or brazing as required by other Code Sections in the manufacture of components. General Welding Requirements; Welding Procedure Qualifications; Welding Performance Qualifications; Welding Data; Welding Forms; General Brazing Requirements; Brazing Procedure Qualifications; Brazing Performance Qualifications; Brazing Data; Brazing Forms. X. Fiber-Reinforced Plastic Pressure Vessels Requirements for construction of an FRP pressure vessel in conformance with a manufacturer's design report. It includes production, processing, fabrication, inspection and testing methods required for the vessel. XI. Rules for In-service Inspection of Nuclear Power Plant Components Rules for the examination, in-service testing and inspection, and repair and replacement of components and systems in light-water cooled and liquid-metal cooled nuclear power plants. XII. Rules for Construction and Continued Service of Transport Tanks Requirements for construction and continued service of pressure vessels for the transportation of dangerous goods via highway, rail, air or water at pressures from full vacuum to 3,000 psig and volumes greater than 120 gallons. ASME is one of the leading organizations in the world developing codes and standards. The ASME Performance Test Codes provide standard directions and rules for conducting and reporting tests. A survey of one of the most important pressure pipe codes - ASME B31, earlier known as ANSI B31. An overview of the ASTM Volume 01.01 standard. Combustion gross and net calorific value. Suspended solids in the feed water will remain in the boiler when steam is generated. Calculate boiler blowdown rate. Steam boilers output can be expressed in Boiler Horsepower, MBTU or in Pounds of Steam delivered per hour. ABMA recommended feed water chemistry limits for steam boilers. Boiler horsepower vs. heat transfer area. Classification of boilers according the ASME Boiler and Pressure Vessel Code. Factors of Safety - FOS - are important in engineering designs. Cavitation of impellers increases with water temperatures. Sizing safety valves according boiler output power in high pressure systems (kW and Btu/hr) Efficiency reduction due to intermittent boiler operation. The most common used safety valve standards in Germany, UK, USA, France, Japan, Australia and Europe. Boiler output vs. feed water temperature. Calculating the amount of steam in non-flow batch and continuous flow heating processes. Radial and tangential stress in thick-walled cylinders or tubes with closed ends - with internal and external pressure. Skip Nav Destination You do not currently have access to this chapter.