

Course Content

Title: The ASME B&PV Code for Nuclear Components Design and Operability Pressure Equipment and Piping

Potential PDH: 24

Code: BTT036

Description:

A three-day course to understand the ASME Boiler and Pressure Vessel (B&PV) Code for nuclear power plant components: Understand the contents of the Code, their technical basis, their evolution over the years, and the regulatory limitations imposed by the US NRC on their application. The course covers design (ASME III) as well as integrity assessment and operability (ASME XI and NRC regulations) through case studies.

Outline:

Part 1 - Overviews

- Overview of ASME Boiler and Pressure Vessel (B&PV) Code
- Overview of ASME B&PV Section III Div. 1
- Overview of ASME B&PV XI Inservice Inspection
- Overview of ASME B&PV IX Welding qualification
- Overview of ASME B&PV Section V Nondestructive Examination
- Overview of ASME Operation and Maintenance (O&M) Code
- Overview of ASME Qualification of Mechanical Equipment (QME) Code
- Overview of NRC 10CFR50.55(a) Limitations on ASME B&PV Code
- Overview of NRC standard review plan and importance of FSAR
- Overview of NRC Inspection Manual 0326 for operability determination

Part 2 - General Requirements

- ASME III NCA general requirements
- ASME III NCA safety classification
- ASME III NCA Design and procurement Specification and Design Report
- ASME III NCA nuclear quality assurance program
- ASME III NCA nuclear accreditation

Part 3 - Materials, Design, and Fabrication

- Overview of ASME III for Class 1 components
- Class 1 material requirements
- Class 1 design requirements vessels, pumps, valves, and piping
- The design loads for nuclear components
- Design, Service Levels A-D, and Testing Loads
- The qualification requirements for nuclear components
- Primary stress limits
- Secondary stress limits
- Class 1 fatigue analysis
- Life extension and environmental fatigue
- Class 1 fabrication, examination, and testing
- On-going developments in ASME III
- ASME III NF design and qualification of pipe supports

Part 4 - Integrity and Operability Evaluations

- ASME XI Evaluation of degraded and non-conforming conditions
- Evaluation of corrosion wall thinning in accordance with ASME XI and NRC
- Evaluation of crack-like planar flaws in accordance with ASME XI and NRC
- Evaluation of beyond-design loads in accordance with ASME III, ASME XI, and NRC

Instructor:

Mr. George Antaki, PE, Fellow ASME, Becht Engineering, Aiken SC USA, has over 43 years of experience in design, qualification, fabrication, trouble-shooting, fitness-for-service, and repairs of ASME pressure equipment and piping systems. He is past vicec