



ASME Section VIII, Division 1 Pressure Vessel Design

Potential PDH: 32

Description:

This course is a comprehensive introduction to pressure vessel design in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Div 1. General topics in the course include general design requirements, design requirements related to materials, welded joint design requirements and vessel component design.

Outline:

1. ASME Section VIII, Division 1 Scope and Responsibilities
 - Become familiar with the scope of ASME Section VIII, Division 1 a well as users' and manufacturers' responsibilities
2. General Requirements. Develop a more thorough understanding of the design rules
 - Cylinders, dished heads, conical heads, flat covers and opening reinforcement for internal and external pressure
 - External loadings, including wind and seismic
 - Appendix 2 flanges
 - Part UHX tubesheets (brief discussion)
3. Design Requirements for Welded Vessels
 - Welded joint categories and welded joint types
 - RT and UT examination and joint efficiencies
4. Material Requirements
 - Postweld heat treatment
 - Impact testing requirements

Subject Matter Expert (SME):

Nathan Barkley, P.E. has nearly 15 years of experience with mechanical design and analysis of pressure vessels and heat exchangers in the refining and chemical industries. Prior to joining Becht, he was the Lead Design Engineer at a world-class fabrication company building ASME Section VIII, Division 1 and Division 2 equipment. He has extensive experience with ASME and API codes and standards for new and post construction. In addition to basic pressure vessel design per Section VIII of the ASME Boiler and Pressure Vessel Code, his experience includes design by analysis for the failure modes of Division 2 Part 5, design certification, fitness for service, rerating, alteration, repairs, and inspection.

Mr. Barkley is actively involved in ASME as a voting member or contributor to the Section VIII Subgroup committees on General Requirements, Design, and High Pressure Vessels. He also holds leadership positions within the ASME Pressure Vessels and Piping Conference and has



published several peer reviewed conference papers on pressure vessel design. Mr. Barkley holds a MS degree in Mechanical Engineering and certificate in Engineering Mechanics from Missouri University of Science and Technology and a BS degree in Mechanical Engineering from the University of Mississippi. He is a licensed Professional Engineer in the state of Texas and holds an inspector certification in API 510.