



PD691 Water Hammer, Piping Design, and Failure Analysis

Day One

- An overview of water hammer and fluid mechanics
- Fluid mechanics design for pipe systems, including Newtonian and Non-Newtonian fluids

Day Two

- Pump curves, system curves, valve operations, and their effects on pipe system performance
- Material Properties

Day Three

- ASME B31.3, Piping design fundamentals and pipe stress calculations
- Failure analysis of pipe system components, including material properties, failure
- Theories, plastic deformation, fatigue, fracture mechanics, and fitness for service

Day Four

- Fluid transients / water hammer
- Shock waves, structural vibrations, and structural dynamics in pipe systems

Day Five

- Shock waves, structural vibrations, and structural dynamics in pipe systems (cont'd)
- Example calculations and class review