



## **PD720 Managing and Coordinating Piping Projects**

### **Introduction**

- Introduction to Piping Layout
  - Piping System Layout
  - Developing the P&ID from the PFD
  - P&ID's, Piping and Equipment Specifications, Lists and Schedules
  - Equipment Layout and Plot Plans
  - Civil, structural, electrical, instrumentation, maintenance considerations
  - Co-ordination of Front End tasks
  
- Piping and Equipment Arrangements,
  - Describe the procedures involved in the layout and piping of a typical process unit containing pumps, exchangers, horizontal drums, storage tanks and vertical towers.
  - Describe how related disciplines, such as civil, structural, electrical, instrumentation, etc., are relevant to piping design and layout.
  - Identify maintenance and accessibility requirements of piping, equipment and related disciplines.
  - Check and certify piping and vendor drawings and calculations.
  - Implement B31 Code requirements and procedures.
  - Case Studies

### **Details**

- Pipe Supports
  - Identify pipe support requirements and assure compliance with B31 Codes and MSS- SP58.
  - Describe piping stress analysis techniques and check results/outputs.
  - Interpret Selection and Location, Anchors, Guides, Restraints, Variable Springs, Constant Load Springs
  - Case Studies
  
- Instrumentation
  - Layout requirements. Process Control Loops, Control Valves, Relief Valves

- Steam and Condensate Piping
  - Steam Traps, Condensate Collection Systems, Drip Legs, Steam Tracing Manifolds
  - Case Studies
- Pipe Racks
  - Design and layout of piping containing liquid, vapor, steam, condensate, slurries, etc.
- Pumps
  - Layout at Horizontal Centrifugal, Vertical Inline, Double Suction, Positive Displacement, Performance Characteristics, Maintenance, Cavitation, Suction Piping Considerations, Strainers, Valving, Parallel Layouts, Series Layouts, Supports, API 610 Loads at Nozzles
  - Case Studies
- Heat Exchangers
  - Shell & Tube, Fin-Tube, Plate, Piping Layout Considerations, Nozzle Loading
- Horizontal Vessels
  - Placement, Nozzle Orientation, Internals, Platforms, Ladders, Case Studies
- Storage Tanks
  - Tank Types, Fixed and Floating Roofs, Dyked Area Design, Fire Protection, Off Site Piping, Case Studies
- Towers and Vertical Vessels
  - Distillation Columns, Tower Internals, Trays, Packings, Reboilers, Nozzle Orientation, Piping at Towers, Supports, Platforms and Ladders, Piping Layout
  - Isometrics, B.O.M.'s, Case Studies
- Compressors
  - Reciprocating, Centrifugal, Piping at Compressors, Vibration Considerations
  - Case Studies

## Managing & Coordinating

- Manage the layout and piping of a typical process unit containing pumps, exchangers, horizontal drums, storage tanks and vertical towers.
- Describe how disciplines, such as civil, structural, electrical, instrumentation, etc., are relevant to piping design and layout.
- Identify maintenance and accessibility requirements of piping, equipment and related disciplines.
- Check and certify piping and vendor drawings and calculations.
- Identify pipe support requirements and assure compliance with B31 Codes and MSS- SP58.
- Describe piping stress analysis techniques and check results/outputs.
- Interpret and implement B31 Code requirements and procedures.
- Learn how to manage a piping project from the front end to completion.
- Develop Operation and Maintenance Procedures.

