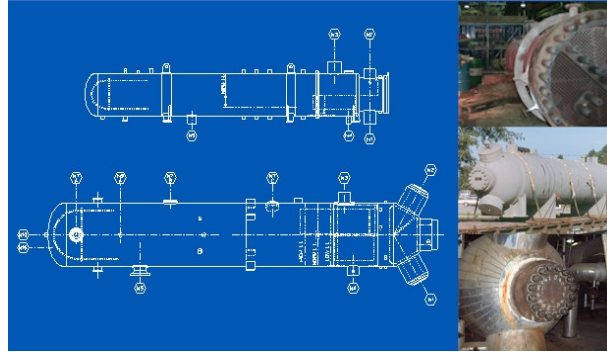


## Feedwater Heater Training Course



### Day One

#### Introduction to FWH

- The role of FWH
- Types of FWH
- FWH configurations
- Identification of major components
  - Shell
  - Zone shrouds
  - Tube bundle
  - Channel/waterbox

#### FWH Construction

- Shellside construction
  - Shrouds
  - Zone baffles
  - Impingement protection
- Tubeside construction
  - Tubes
  - Tubesheets
  - Tube attachment
  - Channels and channel closures
  - Pass partitions

#### Codes and Standards

- HEI Standards
- Other standards

### Day Two

#### Thermal Design

- Heat balances
- Temperature profiles
- Heat transfer
- Pressure drop
- Drains cascading
- Venting
- Wet-wall approach

#### Datasheets and Performance Testing

- Using FWH datasheets
- Performance Testing

#### Vibration

- Vibration mechanisms
- Designing to avoid vibration

#### Instrumentation and Control

- Feedwater heater ancillaries
- Instrumentation
- Level control

### Day Three

#### Designing for Reliability

- Causes of FWH failure
- Erosion
- Corrosion
- Abnormal operation
- Solutions to common reliability problems

#### Maintenance and Inspection

- Access for inspection and maintenance
- Regular maintenance requirements
- Inspection techniques
- Data recording
- On-line monitoring

#### Feedwater Heater Repair

- Repair procedures
- Tube plugging
  - Types of tube plugs
  - Plug selection
  - Plugging procedures
- Weld repair