PD770
Inspection, Repairs, and Alterations of Boilers

Day 1

- Module 1: Introduction to course
  - In-service inspection Codes and Standards (ASME, NBIC, API)
  - Jurisdictional requirements
  - Codes and Standards
  - NBIC Registration

- Module 2: Boiler Classifications
  - Classification of boilers – power boilers, heating boilers
  - Water tube boilers, HRSG, fire tube boilers,

- Module 2.2 Design Calculations

- Module 2.2 Manufacturers Data Report

- Module 3: National Board Inspection Code (NBIC)
  - Introduction to NBIC,
  - National Board stamps (R, VR), and markings
  - Inspector ‘s qualifications
  - Owner-user inspection organization

- Module 3.1 Accepted NBIC & Codes per Jurisdiction

- Module 4: Installation
  - General requirements
  - Power boilers
  - Heating boilers
  - Pressure relief devices, and piping
  - Installation inspection, and documentation

- Module 4.1 Installation Forms

- Module 5: Inspection
  - Inspection requirements
  - Examinations, test methods, and evaluations
  - Power boilers
  - Heating boilers
  - Specific types of boilers
  - Pressure relief devices, and piping
  - Inspector’s calculations
  - Stamping, documentation, and forms

- Module 5.1 Inspection Forms

- Module 5.2 NBIC Part 2

- Module 6: Inspector Calculations

- Module 6.1 Calculation Workshop

Day 2

- Module 7: Outage Inspection
  - Walk down inspection
  - Boiler major components (Drums, super heaters, economizers, etc.)
  - Boiler auxiliary equipment (Blowdown tank, condenser, cooling tower, etc.)
  - Heat Recovery Steam Generators

- Module 8: Boiler Tube Failure
  - Introduction
  - Tube failure mechanism
  - Water-touched tubes
  - Steam touched tubes

- Module 9: Boiler Mechanical Reliability
  - Reliability program
  - Deterioration mechanism
  - Boiler on-stream inspection
  - Inspection of foundations, setting, and appurtenances
  - Inspection checklists

- Module 9.1: RAM (Reliability, Availability and Maintenance)

- Module 10: Repairs and Alterations
  - General requirements
  - Repair and alteration methods
  - Welding and heat treatment
  - Repair and alteration calculations
  - Examination, testing, and inspection
  - Stamping, documentation, and forms

- Module 10.1 Repair Forms

- Module 11 Pressure Relief Devices

- Module 12 Review Questions