API 510 PRESSURE VESSEL INSPECTOR

(Certification Preparation Program)

Course Date:	To Be Determine with Benefeciary
Course Overview:	This is an intensive 10 days training course to provide a comprehensive understanding of the design, inspection and maintenance of pressure vessel based on API 510 standards. It aims to provide the oil, gas and petrochemical industries with the assurance that pressure vessel inspectors have been trained under this internationally recognized program to have the required knowledge and experience for inspection of in-service pressure vessels. Course participants aspiring to be certified by API will get well versed with the various code books and standards to be prepared for the API 510 examination.
Course Objectives:	The course provides participants with the knowledge necessary to: ✓ Successfully pass the API 510 Pressure Vessel Inspector certification exam ✓ Effectively use major codes: ASME B&PV & Sections V, VIII, & IX ✓ Perform all basic piping calculations needed for the API exam (e.g. tmin, test pressure, MAWP, static head, MDMT, corrosion rates, remaining life, etc.) ✓ Use API's requirements during inspection, repairs, and alterations of pressure vessels ✓ Review welding procedures (WPS/PQR) and welder performance qualifications (WPQ)
Who should attend?	The Course is designed for Pressure Vessel Inspection Engineers, Inspection Personnel, Operating Engineers, Managers, Maintenance Engineers and personnel involved in design, operation, inspection and maintenance of pressure vessels. This course will also be beneficial to those who are preparing themselves for the API 510 certification examination.
Training Outline:	**DAY 1** **1) Welcome & Introduction** **2) ASME B&PV Section VIII – Vessel Fabrication Code** Learn how to successfully use this Code: ☐ Purpose of the Code ☐ Scope of the Code ☐ Organization of the Code ☐ Qualification requirements specified by the Code ☐ Roles specified by the Code ☐ Key terms discussed in the Code ☐ Tips on how to find needed information in the Code **Day 2** **1) API 510 Sections 1-4** ☐ Purpose or API 510 ☐ Scope of API 510 ☐ Responsibilities defined in API 510 ☐ Tips on how to memorize important information from API 510

DAY 3
1) Review Homework from Day 1
2) ASME B&PV VIII – Key Concepts
☐ Vessel MAWP
☐ Vessel Part MAWP
☐ Stresses – Longitudinal and Circumferential
☐ Types of Joints, Weld Joint Categories
☐ Amount of RT – Full or Spot
☐ RT Factors

DAY 4
1) ASME B&PV VIII – Calculations & Charts
Learn how to successfully determine the following:
☐ Static Head Pressure
☐ Vessel MAWP
☐ Joint Efficiency
☐ Minimum Thickness for a Cylindrical Shell

DAY 5
1) Review homework from Day 2
2) ASME B&PV VIII – Key Concepts
☐ Pressure Testing cautions & requirements
☐ The significant of a brittle fracture
3) ASME B&PV VIII – Calculations & Charts
Learn how to successfully determine the following:
☐ Minimum Thickness for a Formed Head
☐ Minimum Thickness for a Flat Head
☐ Vessel Part MAWP for Shell and Formed Heads
☐ Hydrotest Test Pressure
☐ Pneumatic Test Pressure
☐ Vessel MDMT
☐ Acceptance criteria for Impact Tests
☐ Maximum Allowable External Pressure for a Shell

DAY 6
1) Review homework from Day 3
2) ASME B&PV VIII –Key Concepts
☐ Fillet weld terms
☐ Principles of nozzle reinforcement
3) ASME B&PV VIII - Calculations & Charts
Learn how to successfully determine the following:
☐ Minimum size of nozzle fillet welds
☐ Nozzle reinforcement

DAY 7
1) API 510 Sections 5-6
☐ Corrosion Mechanisms
☐ Fitness for Service Evaluations
☐ Inspection Types and Requirements, Inspection Intervals
☐ Pressure Testing Requirements

	☐ Inspection of Relief Devices **2) Review Homework from Day 4** **3) ASME B&PV Section IX - Welding Code** ☐ Purpose of the Code ☐ Roles of the Inspector ☐ Organization of the Code ☐ Welding Positions – Test and Field ☐ Testing Requirements and Acceptance Criteria ☐ Welder Qualification Process and Restrictions ☐ Weld Procedure Qualification Process and Restrictions **DAY 8** **1) Review and Evaluate a WPQ (Welder Performance Qualification)** **2) Review and Evaluate a WPS (Welding Procedure Specification) and the associated PQR (Procedure Qualification Record)** ☐ Section IX Homework ☐ Open and Closed book Quiz, evaluate 2 WPQ's, and 1 WPS/PQR **3) Review Homework from Day 5** **4) API 510 Section 7** ☐ Repairs & Alterations Requirements ☐ PWHT Alternatives ☐ Inspector & Engineer Roles ☐ Re-rating Requirements **DAY 9** **1) ASME B&PV Section V – NDE** ☐ Purpose of the Code ☐ Organization in the Code ☐ Tips on hoof the Code ☐ RT Techniques ☐ Purpose & Selection of IQI's ☐ RT Film Density Requirements ☐ Key terms discussed w to find needed information in the Code **2) Review Homework from Day 6** **3) API 576 – Relief Devices** ☐ Types of Relief Devices ☐ Purpose & operation of Balanced Bellows Relief Devices ☐ Purpose & operation of Pilot Operated Relief Devices ☐ Tips on how to study this document **DAY 10** **1) API 572 – Inspection of Vessels** ☐ Tips on how to study this document **15) API 571 – Damage Mechanism causing Deterioration** ☐ Tips on how to study this document **Practice Exam – Exam is similar to the API 510 exam**
Training Methodologies	

Duration:10Days**Venue:**Jubail

Time:08:30 AM -05:30 PM **Numbers of hours: 80** Hours