1. Course Details:

Course Code : APIQ-004
Course Title : API 580 Risk Based Inspection - RBI
Course Duration : 5Days

2. Course Overview

- This course presents the general methodology of Risk Based Inspection, identifies the key elements of an RBI program, and discusses how to implement an RBI program. The course will include a discussion on identification of API RP 571 damage mechanisms, API 510/ 570/ 653 inspection methodologies, risk management, and risk mitigation strategies. Requirements for input data and information, and the roles of the RBI Assessment Team will be described. Approaches to levels of RBI assessment and basis for implementation will be examined.

3. Learning Outcomes:

- Course aims at understanding of the nature of corrosion patterns, exact causes of corrosion, prediction of locations where corrosion would take place and where to focus the in-service inspection efforts to get best results in minimum efforts. The course helps the participants to get a thorough overview optimum implementation of API in-service inspection program. In other words, estimate the level of RISK and orient in-service inspection accordingly.
- The course heavily relies on practical utility of this Recommended Practice by covering several examples, exercises and case studies.

4. Course Contents:

Day 1:
Session 1:

- Benchmark Quiz
- What are causes and patterns of various corrosions in Oil and Gas Industry
- Objectives of in-service API inspection programs (510/570/ 653)
- Understanding of effectiveness of standard API inspection programs (510/570/ 653)
- Discussion on limitation of standard API inspection programs (510/570/ 653).
- Quick overview of API (510/570/ 653) codes.

Session 2:

- BASIC CONCEPTS. What is Risk?
- Risk Management and Risk Reduction
- The Evolution of Inspection Intervals.
- Inspection Optimization
- Relative Risk vs. Absolute Risk

Session 3:

- Introduction to Risk Based Inspection
- Consequence and Probability for Risk-Based Inspection
- Types of RBI Assessment
- Precision vs. Accuracy
- Understanding How RBI Can Help to Manage Operating Risks
- Management of Risks
- Relationship Between RBI and Other Risk-Based and Safety Initiatives
- Relationship with Jurisdictional Requirements
- Home Work - 1

Day 2:

Session 1:

- Points to recall day 1
- Planning of RBI Assessment
- Establishing Objectives and Goals of a RBI Assessment
- Establish Operating Boundaries
- Selecting a Type of RBI Assessment
- Estimating Resources and Time Required

Session2:

- Various Methodologies of RBI Assessment (Qualitative, Semi-Quantitative and Quantitative Analysis)
- Case Study 1 – Qualitative Analysis.
- Discussions on Case Study 1
- Case Study 2 – Qualitative Analysis
- Discussions on Case Study 2

Session 3:

- Assessing Probability Of Failure
- Introduction to Probability Analysis
- Units of Measure in the Probability of Failure Analysis
- Types of Probability Analysis Determination of Probability of Failure
- Home Work – 2

Day 3:

Session 1:

- Points to recall day – 2
- Assessing Consequences of Failure
- Introduction to Consequence Analysis
- Types of Consequence Analysis
- Units of Measure in Consequence Analysis
- Volume of Fluid Released
- Consequence Effect Categories

Session 2:

- Case Study 3 – Quantitative Analysis
- Probability and Consequences Analysis of Case Study - 3
- Determination of Risk
- Risk Management Decisions and Acceptable Levels of Risk
- Sensitivity Analysis
- Risk Presentation,
- Establishing Acceptable Risk Thresholds Risk Management

Session 3:

- Managing Risk by Reducing Uncertainty Through
- Identifying Risk Management Opportunities from RBI and Probability of Failure Results
- Establishing an Inspection Strategy Based on Risk Assessment
- Managing Risk with Inspection Activities
- Managing Inspection Costs with RBI
- Assessing Inspection Results and Determining Corrective Action
- Achieving Lowest Life Cycle Costs with RBI
- Homework – 3

Day 4:

Session 1:

- Points to recall day – 3
- Other Risk Management Activities
- Equipment Replacement and Repair
- Evaluating Flaws for Fitness-for- Service
- Equipment Modification, Redesign and Rerating

Session 2:

- Emergency Isolation
- Emergency Depressurizing/De-inventory
- Modify Process
- Reduce Inventory
- Water Spray/Deluge, Water Curtain
- Blast-Resistant Construction

Session 3:

- Case Study – 4
- RBI Reassessments
- Why Conduct a RBI Reassessment?
- When to Conduct a RBI Reassessment?
- Homework - 4

Day 5:

Session 1:

- Points to Recall Day 4

- Team Approach
- Team Members, Roles & Responsibilities
- Training and Qualifications For RBI Application

Session 2:

- Posttest inspection
- RBI Documentation and record keeping
- RBI Methodology
- RBI Personnel
- Time Frame
- Assignment of Risk
- Assumptions Made to Assess Risk
- Risk Assessment Results
- Mitigation and Follow-up
- Codes, Standards and Government Regulations

Session 3:

- Final Exam – Closed Book
- Final Exam – Open Book
- Feed Back
- Concluding session RBI Course

5. Our Methodology:

- Make coaching and monitoring innovative and using modern
- Media training also using on the go training by using interactive means and focusing on
- The exercises, practical applications and real situations study.
- Live delivery method, instructor-led training.
- Experienced consultant, trainers, and professional.
- Qualified trainer with high-level experience

6. Attendance Reports:

- Send daily attendance reports to trainingdep
- Send full attendance report to training dep. by the end of thecourse
- Attend 100 % from the course days also providedaily
- Issue attendance certificate for participant who attend minimum 80% from the course duration

7. Pre/Post Reports:

- Pre- assessment before starting training.

- Post assessment after finish training
- Full report for the deferent between Pre-& Post assessment

8. Who Should Attend?

- The course ideally suited for the professionals involved in maintenance and in-service inspection (API 510/ 570/ 653) of Pressure Vessel Piping, Storage Tanks, and Rotary Equipment
- Representatives of plant management can also participate