COURSE BROCHURE

Risk-Based Inspection

An advanced course training inspection and integrity engineers to build an RBI assessment using API 580 and API 581, from corrosion loops, probability and consequence of failure to a risk-ranked inspection plan.

Code	HT-OGE-147
Category	Oil & Gas, Engineering & Maintenance
Duration	1 week
Level	Advanced

Introduction

Spreading inspection effort evenly over every item drains the budget while leaving the real risks under-examined. Risk-based inspection directs resources to the small share of equipment that carries most of the risk and gives the facility a defensible basis for extending or shortening inspection intervals.

Objectives

- Explain the elements of an RBI program in API 580, the roles in the assessment team and the data required
- Divide a process unit into corrosion loops and assign damage mechanisms and integrity operating windows
- Calculate probability of failure from generic failure frequency, damage factors and inspection effectiveness
- Estimate safety, environmental and production consequences and place equipment on the risk matrix
- Convert risk results into an inspection plan and mitigation actions and keep the assessment up to date

Who should attend

- Inspection and asset integrity engineers
- Corrosion and materials engineers
- Reliability and process engineers serving on RBI teams
- Inspection and maintenance managers

Skills you will develop

- Building corrosion loops and assigning damage mechanisms
- Calculating probability and consequence of failure
- Ranking equipment by risk
- Preparing risk-based inspection plans

Learning Outcomes

- Compile an RBI data register for a group of equipment and identify data gaps and assumptions
- Calculate the thinning damage factor from the Art parameter and the inspection effectiveness category
- Find the date at which risk reaches the target and choose the inspection that pushes it back
- Review an existing RBI assessment and spot weaknesses in its assumptions

Course Outline

Day 1: RBI Concepts and Framework

- Risk as the product of probability and consequence of failure, and qualitative, semi-quantitative and quantitative approaches
- Program elements in API 580 and the relationship to the API 510, API 570 and API 653 inspection codes
- Scoping, team formation, data sources and dealing with missing data

Day 2: Corrosion Loops and Damage Mechanisms

- Dividing the unit into corrosion loops and inventory groups using process flow diagrams and material selection diagrams
- Assigning damage mechanisms from API 571: thinning, stress corrosion cracking, external damage and high temperature hydrogen attack
- Integrity operating windows under API 584 and their link to damage rates

Day 3: Probability of Failure

- Generic failure frequency, management systems factor and damage factors in API 581
- Thinning damage factor: the Art parameter, confidence in the corrosion rate and the effect of the number and quality of inspections
- Inspection effectiveness categories A to E and a calculation exercise on a vessel and a piping circuit

Day 4: Consequence of Failure and Risk Ranking

- Release hole sizes, release rate, inventory mass and detection and isolation systems
- Flammable and toxic consequence areas and financial consequence from lost production and repair
- Risk matrix, iso-risk lines, setting risk targets and identifying the risk drivers of each item

Day 5: Inspection Plan, Sustaining the Program and Applied Workshop

- Building the inspection plan: date, technique and coverage, and mitigation other than inspection
- Reassessment after inspection, management of change and common implementation pitfalls
- Applied workshop to assess a group of equipment from an amine gas treating unit and present the risk matrix and inspection plan

Training methodology

Structured instruction that follows the stages of a real RBI project
Simplified spreadsheet applying damage factors and consequence areas
Group exercise marking up corrosion loops on a process flow diagram
Closing workshop to assess equipment and prepare its inspection plan

Certification

Participants receive a Harbor Training Center certificate of attendance on completing the course.

Upcoming dates

City	Dates	Language	Fee
Istanbul	1 – 5 March 2027	AR	EUR 5,400
Dubai	8 – 12 March 2027	EN	EUR 4,800
London	15 – 19 March 2027	AR	EUR 5,800
Amsterdam	22 – 26 March 2027	EN	EUR 6,100
Online	5 – 9 April 2027	AR	EUR 2,800
Istanbul	6 – 10 September 2027	EN	EUR 5,400
Dubai	13 – 17 September 2027	AR	EUR 4,800
London	20 – 24 September 2027	EN	EUR 5,800
Amsterdam	27 September 2027 – 1 October 2027	AR	EUR 6,100
Online	4 – 8 October 2027	EN	EUR 2,800

Fees are per participant.

Contact us

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To register and for details, scan the code or visit:

https://harbor4training.com/en/courses/risk-based-inspection