



Maintenance & Reliability Management

Risk Based Inspection (RBI): Implementation, Integration & Management

Course Introduction

The Risk-Based Inspection, Operation, Maintenance and Redesign Methodology will be used in seminar to manage the overall risk of a plant by focusing efforts on the process equipment with the highest risk. The basis for making informed decisions on inspection frequency, the extent of inspection, operating limits, maintenance, material upgrade and the most suitable type of NDE. In most processing plants, a large percent of the total unit risk will be concentrated in a relatively small percent of the equipment items. These potential high-risk components may require greater attention, perhaps through a revised inspection plan.

The cost of the increased inspection effort may sometimes be offset by reducing excessive inspection efforts in the areas identified as having lower risk. The objectives are to ensure that facilities are correctly inspected, designed, and operated and maintained within the equipment design envelopes. The profitability of the facilities is significantly impacted by the effectiveness of inspection, operation, design and maintenance strategies and programs in place.

The Risk Based Inspection process.

This Risk Based Inspection Training Course is a FIVE days program introducing the essential principles and benefits of the Risk Based Inspection process. Delegates are provided with in-depth knowledge of asset integrity as a key to ensuring operations are safe, profitable and productive. The course demonstrates the many ways in which RBI can be applied with varying rigor for the highest risk items and develops an understanding of deterioration mechanisms, failure modes and associated risks to focus attention and priorities on critical or 'real risks'.

Target Audience

- Facilities Engineer
- Facilities Engineering Manager
- Facilities Manager
- Facilities Specialist / Coordinator

- Health and Safety Engineer
- Maintenance Group Leader
- Maintenance Helper / Assistant
- Maintenance Manager
- Maintenance Superintendent
- Maintenance Supervisor
- Mechanical Reliability Engineer
- Network Reliability Engineer
- Operations and Maintenance Specialist
- Reliability Engineer

Learning Objectives

- Understand the RBI Process of Implementation, Integration and Management.
- Understand how to establish a RBI program within your business
- Understand some of the key technical issues involved in RBI studies and the benefits of RBI.
- The participants will gain knowledge of programs and methods to achieve equipment integrity improvements to reach target performance by application of RBI methodology and software.
- They will learn the proven Best Practices that are appropriate to apply for different equipment as well as the basics of implementing the practices to reach Integrity, Reliability, Availability and Maintenance Cost Reduction Targets.
- Have knowledge of the inspection, design, fabrication, operation or maintenance of process equipment and piping, as well as some knowledge of the most common pressure equipment design codes/standards.

Course Outline

- 01 DAY ONE

Module (01) Introduction to RBI

- 1.1 Meaning of RBI
- 1.2 Methodology within each Step of An RBI
- 1.3 Contribution with RBIs most Effectively
- 1.4 The Information and Commitment Required
- 1.5 The benefits of RBI
- 1.6 Guidelines of RBI
- 1.7 Guidelines on Periodicity of Examinations
- 1.8 Guidelines on Risk Assessments
- 1.9 Guidelines on Risk Based Inspection
- 1.10 Selection Process for RBI Approach

• 02 DAY TWO

Module (02) Application of Risk Based Inspection

- 2.1 System Definition
- 2.2 Criteria for Application
- 2.3 Summary of Main Points
- 2.4 References for Industrials
- 2.5 Probability Analysis

Module (03) The RBI Team

- 3.1 Composition and Competencies
- 3.2 Role of the Competent Person
- 3.3 Role of Team Leader
- 3.4 Conduction of Approach to RBI Assessment
- 3.5 Summary of main Points

• 03 DAY THREE

Module (04) Plant Data Requirements

- 4.1 Essential Data
- 4.2 Failure Consequence Assessment
- 4.3 Published Data, Experience and technical Guidance
- 4.4 Case Studies for Practical Industrials

Module (05) Risk Analysis Procedures

- 5.1 Elements of the Process
- 5.2 Identification of Accident Scenarios
- 5.3 Identification of Deterioration and Mode of Failure
- 5.4 Probability of Failure Assessment

- 5.5 Determination of the Risks from Equipment's Failure
- 5.6 Risk Ranking and Categorization

• 04 DAY FOUR

Module (06) Assessing Degradation/ Deterioration Risk

- 6.1 Developing De-gradation Risk Scenarios
- 6.2 Generic Fixed Equipment Degradation
- 6.3 Typical Risk Scenarios to be consider RBI
- 6.4 Assessing Failure Consequence
- 6.5 Assessing Damage Mechanisms, Probability Failure
- 6.6 Inspection Planning using API RBI Technology
- 6.7 Risk Matrix (Area and Financial)

Module (07) Identification and Managing Risk

- 7.1 Define Credible Risk Scenarios
- 7.2 Assess Unmitigated Risks for each Scenario
- 7.3 Define Potential Mitigation Strategies
- 7.4 Assess Mitigated Risks and Estimate Costs & Benefits for the Business

• 05 DAY FIVE

Module (08) Risk and Cost Benefits Analysis

- 8.1 Risk-based Benefits/Cost Analysis
- 8.2 Evaluating the Need for Equipment Monitoring
- 8.3 Inspection, Preventive Maintenance, or Repair
- 8.4 Modification and Re-design
- 8.5 Life Cycle Cost Analysis

Module (09) RBI Integrated with O & M Planning

- 9.1 Review Risk Assessment to assure Highest Risks have been mitigated
- 9.2 Determine Optimum Mitigation Strategy involving Inspection, Operation, Maintenance for each Risk And among related Risks
- 9.3 Prioritize Recommendations by comparing relative Value among Strategies.
- 9.4 Compile Risk-based, Prioritized, Cost Effective Portfolio of Improvement Opportunities.
- 9.5 RBI Assessment may identify Risks that may be Managed by Actions other than Inspection
- 9.6 Upgrading Safety and Detection System
- 9.7 Remove of unnecessary insulation to reduce Probability of Corrosion under Insulation

Confirmed Sessions

FROM	TO	DURATION	FEE\$	LOCATION
April 21, 2025	April 25, 2025	5 days	4250.00 \$	UAE - Dubai
June 15, 2025	June 19, 2025	5 days	2150.00 \$	Virtual - Online
July 28, 2025	Aug. 1, 2025	5 days	4950.00 \$	France - Paris
Oct. 26, 2025	Oct. 30, 2025	5 days	4250.00 \$	KSA - El Dammam