

**TRAINING TITLE**

**RISK-BASED INSPECTION FOR STATIC EQUIPMENT**

**Training Duration**

**5 days**

**Training Dates & Venue**

RM091	Risk-Based Inspection for Static Equipment	5	10-14 Feb. 2025	\$5,500	Abu Dhabi, UAE
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**Will be conducted in a 4 or 5-star hotel to be finalized upon confirmation.**

**Training Fees**

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

**Training Certificate**

**Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.**

**TRAINING DESCRIPTION**

Offshore structures do degrade while in-service due to deficiencies from original fabrication, corrosion or due to other different causes of degradation. The complex, extensive corrosion and fatigue risks to offshore structures in sea environment have considerable impact in inspection planning. The practical interpretation of risk-based management principles and the use of the most appropriate techniques are of great practical significance to the operators of Offshore Platforms. API RP 580 and API Publication 581, 2000 Edition- Risk Based Inspection Base Resource Document are discussed during the course. RBI utility is based on the premise that a few vital areas of offshore platform contribute a majority of the risk. To alleviate the risk level, more and more companies, since the last decade, have adopted risk-based inspection (RBI) methodology to reduce risk and to improve cost benefits

SIM and Fitness-for-Service (FFS) assessments are quantitative engineering evaluation performed to determine the structural integrity of in-service systems such as offshore platform, containing a flaw or damage. The SIM & FFS help engineers to make run-repair-replace decisions. Technically sound fitness-for-service assessment procedure ensure life prediction, and to help optimize maintenance and operation of existing facilities is an integration of three disciplines; these are materials, inspection, and mechanical analysis.

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This course delves on applied RBI methodology & SIM (Structural Integrity Management) in order to optimize the inspection & maintenance strategy of Offshore Platforms. All of the above will be presented in connection with the related codes and standards.

### **TRAINING OBJECTIVES**

- The participant will learn the importance of RBI for offshore platforms
- The participant will learn the principles of SIM and FFS, and how to apply it on offshore platforms.
- The participant will learn where to find and how to calculate data necessary for FFS application
- To Understand the critical steps in the SIM (Structural Integrity Management) process
- The participant will learn how to use RBI, SIM and FFS to take right decision concerning the operation, shutdown, interval of inspection, repair of the existing in-service offshore platforms
- The participant will learn how to evaluate the integrity and remaining life of offshore platforms.

### **WHO SHOULD ATTEND?**

- Structural Engineers,
- Mechanical engineers,
- Structural integrity engineers,
- Asset integrity Engineers of offshore platforms
- O&M engineers and
- Inspectors responsible for design, installation, operation, integrity and maintenance of offshore platforms are encouraged to attend this course.

### **TRAINING METHODOLOGY**

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

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- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

## **COURSE PROGRAM**

### **DAY 1:**

Introduction to RBI process  
Introduction to offshore structures  
Different types of offshore structures  
Introduction of Risk Based Inspection (RBI)  
Basic Concepts of RBI  
Deterioration mechanisms and Failure modes

### **DAY 2:**

Structural Degradation  
Inspection Techniques  
Age-related structural degradation  
Corrosion wastage and coating degradation  
Codes, Standards and Regulations  
Introduction to Structural integrity management (SIM)  
Structural reliability

### **DAY 3:**

Risk Management  
Failure probability and reliability  
Planning for the RBI Assessment  
Data and Information collection for RBI  
Risk Determination  
Risk Management through Inspection

### **DAY 4:**

Risk Assessment  
Other Risk Mitigation Activities  
Assessing Probability of Failure (POF)  
Assessing Consequence of Failure (COF)  
Assessment of structural integrity for existing offshore load-bearing structures  
Assessment of Structural Integrity –ISO 19902

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**DAY 5:**

Stress Analysis for FFS Assessment

Assessment –Acceptance Criteria (SLS, ULS & FLS)

Stress Analysis for FFS Assessment

Stress Analysis Methods for a FFS

Linear Elastic Stress Analysis Methods and Acceptance Criteria

Nonlinear Elastic Plastic Stress analysis Methods and Acceptance Criteria

Methods of Structural Stability

Methods of Fatigue Evaluation

FFS Assessment Using Finite Element Analysis

Determine repair and mitigation measures

Planning and undertaking remedial actions

Life extension Studies

Managing the life extension approval process (fixed installations)



**NOTE:**

**Pre-& Post Tests will be conducted.**

**Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.**



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