



شركة ميرك العربية السعودية
MEIRC Saudi Arabia

Advanced Process Risk Assessment

Duration 5 Days

INTRODUCTION

The global trend in integrating Health, Safety and Environmental Management Systems underpins commitment to implementing a pro-active approach to risk management based on structured and systematic risk assessment. This programme is aimed at providing hands-on experience on the application of advanced risk assessment techniques and will enable delegates to:

- identify hazards, particularly those resulting from human error,
- evaluate risks and target resources to prevent accidents through effective risk management.
- learn and become familiar with Quantified Risk Assessment 'QRA' and
- review latest software on fire, explosion and dispersion modelling following hydrocarbon and toxic releases

WHO SHOULD ATTEND?

- Any Personnel involved in carrying out risk assessment and accident prevention

PROGRAMME OBJECTIVES

- Overview of risk assessment and risk management
- Hazard and risk - Concept, definitions and terminology
- Risk comparison: voluntary v. involuntary risks and tolerability of risks
- Types of risk: Individual, societal, economic and environmental risks
- Framework for risk assessment
- Estimation and evaluation of risks: qualitative, semi-quantitative and quantified risks
- The link between risk assessment and risk management: Framework for risk management
- Elements of risk management: Prioritising actions, planning and implementing
- Human error and accident causation (latent and active errors): Bhopal and Piper Alpha
- Techniques for hazard identification and analysis: COSHH, check-lists, HAZOP and task-based risk assessment
- Cause-consequences analysis: the role of fault trees and event trees in accident prevention
- Review of the latest commercial software developed by DnV, Shell, and BP for dispersion modelling, fire, explosion and toxic releases
- Techniques for human reliability analysis
- Preparation of action plans
- Prioritising and targeting corrective and preventive measures

PROGRAMME SUMMARY

Delegates will be able to apply skills learnt at a practical level to identify sources of major hazards and to prioritise decisions for their control. In addition to the professional development of staff, the organisation should be able to prioritise resources to demonstrate that process risks are adequately controlled.

PROGRAMME OUTLINE

DAY 1 - Introduction to Risk Assessment

- Programme introduction: delegate and tutor introductions; programme objectives
- Introduction to HSE Management Systems
- Integrating risk assessment within Risk Management
- Semi-quantitative risk assessment techniques - machinery based



- The task-based approach to risk assessment
- Syndicate exercise: Working in small groups
- Feedback and review of day 1

DAY 2 - Hazard and Operability Studies 'HAZOP'

- Introduction to hazards identification and analysis techniques
- Techniques for hazard identification and analysis - HAZOP
- Syndicate exercise - application of HAZOP to relevant processes
- Planning and implementing within risk management system
- Report back and review of day 2

DAY 3 - Analysis of the consequences

- Introduction into reliability technology
- Failure Modes and Effects Analysis 'FMEA'
- Failures of Permit-to-work systems: video presentation on Piper Alpha
- Analysis of the consequences- mechanics of fire, explosion and toxic releases
- Role of Fault Tree Analysis to identify how accidents can happen
- Group exercise on FTA
- Report back and review of day 3

DAY 4 - Human Factors and Reliability

- Introduction to human factors and human error
- Hierarchical task analysis 'HTA'
- Task-based HAZOP: Application to critical activities onshore and offshore
- Working in small groups on task-based hazops
- Report back
- Integrating human factor within HSE management system - The Bhopal disaster

DAY 5 - Quantified Risk Assessment

- Introduction to Quantified Risk Assessment 'QRA'
- The role of Event Tree Analysis in scenario development
- The role of Fault Tree Analysis for multi-causation analysis
- Applications for ETA and FTA
- Case Study: Working in small groups on accident analysis
- Preparation of action plans, planning and implementing
- Report back and discussion
- Personal action plans, programme review and the way ahead