



## Risk Management in Production Operations

- Companies engaged in production activities recognize the critical need to keep such operations running effectively and efficiently.
- To do so requires full and complete knowledge of the factors that can impact the ability to manage such production operations. Implementing a systematic assessment of the risks involved and the way the risks are currently managed is widely recognised as the key to success.
- The business environment in the Middle East is developing faster than in almost any other part of the world, and as a result the risks are changing rapidly.
- This course aims to provide you with the tools and techniques to optimize your risk assessment process and measure the value delivered

### Who Should Attend?

Any executive or manager tasked with developing, implementing or facilitating risk analysis within production operations.

This 4-day course will enable participants to:

- Enhance understanding of risks and exposures faced
- Measure and quantify risks effectively
- Assess all key production risks in depth
- Understand the wide variety of risks involved
- Evaluate complex scenarios and emerging risks using HAZOP, fault tree and other analyses
- Determine appropriate risk measurement techniques
- Decide on the best method to record the risks and their relationships
- Experience risk evaluation using your own risks

# Course Outline

## Day 1 The need to manage production risk

- What is risk?
- Why is it necessary to understand production risks
- Why health and safety is only the tip of the risk iceberg
- Why senior management often lack a full understanding of the threats
- Definition of business risk and its nuances
- Designing risk strategies and systems to suit your organisation
- Why production risk management is receiving such publicity
- High profile failures and public embarrassments
- Explanation of the AS/NZS 4360 standard – the internationally recognised risk management standard
- Other legislation and regulation
- Understanding the organisation's risk appetite regarding production operations
- Categories of Risk
- The Risk management framework
- *Syndicate Exercise – analysing a production disaster*

## Risk Identification and Evaluation

- How to establish a formalised risk assessment process
- How to measure risk
- Establishing risk workshops
- The use of diagnostic questions and thought-provokers
- How to identify, sift and group the risks
- Measuring the consequences and the likelihood of occurrence of each risk
- *Team Exercise – Risk taking in action*
- The use of risk matrices to prioritise the risks.
- Agreeing a common risk language
- Developing a production risk policy for your organisation
- Selling the benefits to management
- Risk workshops – the do's & don'ts
- HAZOP (Hazard Identification and analysis techniques)
- Quantified Risk Assessments (QRA)
  - Event tree analysis
  - Fault tree analysis
  - Monte Carlo Simulations
  - Bayesian Networks

## Interactive Risk Workshop

- *An actual production risk workshop – with your own risks*
- *Enabling you to appreciate all elements covered in a live situation*

## Day 2 - Evaluation of production risk mitigation strategies,

### Assessment of Risk Mitigation

- Managing risk – the options
- Management evaluation of mitigation controls
- How to assess risk mitigation
- Identification of risk exposures
- Critical evaluation of exposures
- Dealing with the exposures ( the 4 Ts )
  - Tolerate
    - Fully accept
    - Monitor
    - Cost of risk V benefits
  - Transfer
    - Outsourcing
    - Partnering
    - Insurance
  - Terminate
    - Cease activity
    - Remove item from production
    - Reduce scale
    - Divest
  - Treat
    - Enhance design
    - Better security
    - Contingency
    - Tolerance levels
    - Fall back arrangements
    - Remove unnecessary controls
- Establishment of action plans.
- Risk registers – the need to coordinate and link the output
- Flagging interdependencies – if one risk treatment is changed the other party or parties impacted need to be notified.
- Risk treatment analysis – how to determine the cost/ benefits of dealing with exposures / exploiting opportunities

### Interactive workshop –part 2

- *Risk mitigation and dealing with the exposures in practice – a full evaluation of the production risks identified yesterday*

## Day 3 Managing the Risks

Each activity will be examined in depth and the associated risks and controls examined

### Operations

- Operational Efficiency
- Cost Management

- **Inventory Management**
- **Interruption to production**
- **Unplanned shutdown**
- **Production Cycles**
- **Design Failure**
- **Reliability**
- **Maintenance**
- **Interfaces with other processes**
- **Product quality**
- **Productivity**
- **Capacity planning**
- **Logistics**
- **Technology failure**
- **Obsolescence**
- **Lack of innovation**
- **Lack of investment**
- **Availability of alternative products**
- **Raw material availability**
- **Spares**
- **Research and Development**
- **Fire and Explosion**
- **Leaks**
- **Sabotage**
- **Production costs**
- **Forecasting**

## **Systems and Technology**

- **Compatibility**
- **Contingency planning**
- **System Integration**
- **Information availability**
- **IT failure**
- **Security breach**
- **Lack of information integrity**
- **Lack of reliability**
- **Fraud**

## **People**

- **Strikes**
- **Loss of key personnel**
- **Inability to attract new staff**
- **Skill shortages**
- **Communication**
- **Trust**
- **Performance and Reward**
- **Workload**
- **Stress**
- **Resistance**
- **Morale**
- **Staff turnover**
- **Decision making**

## Health and Safety

- Personal injury
- Accidents
- Damage
- Contamination
- Disease
- Catastrophic event
- Regulatory non-compliance
- Emissions
- Noise
- Equipment failure

## Day 4 Developing an Integrated Approach

- Linking risks identified into production planning, resource allocation and budgeting
- Risk owners – how to determine such personnel and enforce ownership
- Developing risk tracking
- Scenario Planning
- Software available to use – pros and cons of different solutions will be shared
- Using the risk register as a decision skeleton
- Half yearly evaluation of key risks to ensure new risks identified and included
- Reports for Management
- Making risk management second nature
- Keeping up the momentum
- How to deal with crises
- Identifying changes in the risk profiles
- How to ensure full awareness of new hazards
- Integrating incident management
- Business Continuity planning
- Measuring the benefits
- *Exercise -Measuring the benefits*

## Cascading the process

- Sharing risk assessments with partners
- Evaluating risks within these relationships
- Integrating with supply chain management
- Workshops for other management levels
- How to measure the benefits
- Risk awareness for staff
- Quality Auditing the Risk Management programme
- How to Identify and reduce excessive controls
- Coordinating the whole process
- Useful web sites and reference books

