PACEUP
YOUR OIL & GAS TRAINING SOLUTIONS

DEVELOPING HSE CASE MAH BOWTIES

For Oil & Gas Operators and Offshore Contractors

2 Days | Kuala Lumpur

> *THIS TRAINING IS IMPORTANT THING TO IDENTIFY MAJOR ACCIDENT HAZARD AND CAN BE APPLIED TO DEVELOP COMPREHENSIVE RISK ASSESSMENT (BOWTIE)*
>
> PETRONAS CARIGALI MURIAH LTD

Program Overview

The Bowtie Methodology lies at the foundation of The Hazards and Effects Management Process (HEMP), the latter being originally developed to provide a structured approach to the analysis of safety hazards throughout the life cycle of an installation that has become the International Best Practice for risk management. The Bowtie technique offers a powerful visual tool for analyzing hazard scenarios and communicating to the workforce how hazards are released, how they can escalate and how they can be managed effectively.

Within the context of HSE Cases, the Bowtie technique is mainly used for the detailed analysis of the controls for Major Accident Hazards (MAHs). For Offshore Contractor HSE Cases, MAH Bowties are usually required for decommissioning activities, well services (such as drilling and workovers) and marine, lifting and helicopter operations.

This two-day training provides participants with a firm grounding of the principles of the Hazards and Effects Management Process (HEMP), the theoretical and practical aspects of Bowtie applications, and how to utilize information from the relevant sections of the HSE Case to develop enhanced MAH Bowtie models. Participants will be required to undertake a number of worked exercises in order to gain practical experience with the use of Bowties.

Who Should Attend?

This course is designed for personnel involved in the management of HSE, Operations, Process, Maintenance, Engineering Design, Projects, Facilities and Enterprise Risk, as well as contractor (helicopter, marine, crane, well services) personnel, who are required as part of their job responsibilities to:

- Identify hazards and effects, Assess their significance, provide Control for hazards and effects and/or provide Recovery Preparedness in the case that control is lost.
- Assume accountabilities/responsibilities for HSE critical activities and HSE critical equipment to ensure that barriers are in place and are effective at all times.

Key Modules

- Overview of the Hazards and Effects Management Process
- The Bowtie Methodology & the BowTieXP Software
- Barrier Management
- Building Bowtie Models Using the BowTieXP software
- HSE MS, HSE Cases and the Bowtie
- HSE Cases and Bowties - Syndicate Exercises

Learning Objectives

This course is designed to help participants to:

- Gain an understanding of the key principles of the Hazards & Effects Management Process (HEMP) and the Bowtie Methodology;
- Gain an understanding of the principles that underlays loss causation. Loss prevention and barrier-based risk management;
- Acquire hands-on experience in building complete Bowtie models and performing Bowtie analysis using the BowTieXP software;
- Develop enhanced MAH Bowties for their company's operations, activities and facilities utilizing information from the relevant sections of the HSE Case;
- Gain a firm grasp of barrier management and acquire practical know-how of it can be effectively achieved.
- Understand the requirements of the HSE MS and the HSE Case and how the Bowtie fits into these requirements.

Course Methodology

- Workshop style
- Lectures
- Group activities
- Case studies
- Q&A

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COURSE OUTLINE

INTRODUCTION & OVERVIEW OF THE HAZARDS AND EFFECTS MANAGEMENT PROCESS

- Definition, Rationale and Drivers
- HEMP – The Principles
- Risk Management & ALARP
- HEMP – The Tools & Techniques
- Hazard Analysis

PRINCIPLES OF LOSS PREVENTION AND THE ACCIDENT CAUSATION MODEL, BARRIER-BASED RISK MANAGEMENT

- Loss Prevention & The Swiss Cheese Incident Causation Model
- Cause & Effect Pathways
- Tripod Beta and BSCAT
- Barrier Failure with examples
- Combined FTA/ETA – the case for Barrier Management
- History and development of the Bowtie technique
- Visualizing risk scenarios using the Bowtie technique
- Risk Communication, Advantages & Limitations of the Bowtie technique
- Multi-sector Bowtie case files

INTERACTIVE BOWTIE WORKSHOP – USE OF THE BOWTIEXP SOFTWARE

- Bowtie nomenclature and definitions:
  - Hazard
  - Top Event
  - Threat
  - Consequence
  - Control Barrier
  - Recovery Preparedness Measure
  - Escalation Factors
  - Escalation Factor Control
  - Mini-exercises on nomenclature and definitions and on creating basic Bowtie models using the BowTieXP software – key functions and features

COURSE OUTLINE

THE ESSENTIALS OF BARRIER MANAGEMENT

- Linking Barriers to the Management System
- Activities and Tasks and Assignation of Responsibilities
- Safety Critical Elements (SCEs) in the Bowtie
- Independent Barriers
- Barrier Effectiveness
- Corrective/Remedial Actions
- Key Functions and features in the BowTieXP software for incorporating these essential features of barrier management, including generating reports and presentations

BOWTIE ANALYSIS AND BUILDING BOWTIE MODELS USING THE BOWTIEXP SOFTWARE

- Syndicate Exercises

HSE MS, HSE CASES AND THE BOWTIE

- HSE MS explained
- HSE Case Explained
- The Bowtie and the HSE Case
- When and Where Bowties are used
- HAZID and Bowties
- The HAZID process

HSE CASES AND BOWTIES - SYNDICATE EXERCISES

- Deciding on HSE MS/HSE Case Structure
- Specifying the Scope of the HSE Case
- Identify and Assess Hazards using the HAZID technique
- Bowtie analysis of High-Risk Hazards using the BowTieXP software

YOUR EXPERT TRAINER

FAIZAL FARID WAJIDI

Faizal Farid Wajidi is an Independent Principal Consultant, specializing in HSE Risk Management, Health Physics and nuclear applications. He has more than 35 years of professional experience, mainly spent in the major hazard sector.

Faizal has broad experience of applying risk management tools and has applied the software-based Bowtie tool for offshore HSE Case studies. Among the earliest users of the BowTieXP software, he is a qualified and experienced Bowtie workshop facilitator having led several HSE risk- and Enterprise risk-based Bowtie workshops for safety regulators and for major companies in the oil and gas, petrochemical, road transportation, maritime and aviation/aerospace sectors in Malaysia, Indonesia and Singapore.

Faizal has previously worked with Shell, Schlumberger, ICI Physics and Radioisotope Services Group, Enviros, Risktec and DNV GL . He graduated from the University of Reading, United Kingdom, with a B.Sc (Hon) degree in Mechanical Engineering and Mathematics.

COMMENT AND REVIEW

BY PETRONAS CARIGALI MURIAH LTD

"THE TRAINER CAN RELATE THE MATERIALS WITH OUR ACTIVITIES HENCE GIVING US MORE ENTHUSIASM"

"VERY GOOD TRAINING MATERIAL & INSTRUCTOR"

"HE HAS LONG TRACK RECORD IN RISK MANAGEMENT TRAINING"

"GOOD COMMUNICATION, FRIENDLY, ANSWER ALL QUESTIONS"

"HE HAS A LOT OF EXPERIENCE ON BOWTIE TRAINING"