



HSE219

Risk Management & Risk Assessment in Petroleum

Course Introduction:

This course is primarily intended to provide awareness of various risk assessment tools and techniques that are applied by petroleum and gas exploration and production organizations. The course is based on OHSAS 18001, OSHA 4500 and EU regulations and deals with its interpretation and implementation strategically to prevent dangerous incidents as well as control and mitigate any kind of incident that may occur.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- ✓ Understand and apply the principles of Risk Assessment and Risk Management
- ✓ Perform Process Safety Management Reviews, establish and manage PSM Teams
- ✓ Understand and implement changes to make the plant environment safer
- ✓ Perform HAZOPS Assessment, set up and manage the HAZOPS Team

Who Should Attend?

This course is intended for managers, engineers, safety professionals, environmental professionals, and all supervisory personnel and managers who may have responsibilities for accounting, and process industries, and the responsibility for plant operations.

Course Outline:

Day 1:

- Introduction
- Pre Test
- Properties of Petroleum
- Significant Challenges
 - Hole sizes and leak rates
 - Flash vaporization, formation of liquid pools, evaporation
 - Ignition
 - Jet fires and pool fires
 - Explosions - confined spaces, in congested plant, in unconfined areas
 - Asphyxiants and toxic gases
 - Vulnerability of personnel, buildings and equipment
 - Types of Risk, People, Assets, Building, and Equipment
- Some examples of disasters and their causes

Day 2:

- Origins of Process Safety & History
- OSHA, and EU Regulations, and UK Competent Authority
- Local Safety regulations in the UAE or local countries
- OHSAS 18001, and OSHA 45001
 - Major Drivers for US & UK Based PSM and HAZOPS
 - Discussion and explanation of US & UK PSM & HAZOPS Standards
 - UK Approach to Safety and the Competent Authority & Offshore Standards
 - Offshore Planning Standards reviewed and explained
 - Response Criteria vs. the Planning Standards
- Introduction to US PSM & HAZOPS Standards
- PSM Covered Chemicals list
- Employer Obligations for PSM

Day 3:

Performing a Process Hazard Analysis (PHA) detailed methodology and lists

- Requirements of the PHA
 - Training Requirements of the PHA
 - Contractors
 - Plant Startup & Safety Review
 - Mechanical Integrity
 - Quality Control
 - Hazards and Permits
- Management of Change
- Incident Investigation and Emergency Planning and Response
- Alarm Systems
- Audit Requirements
- Management of Trade Secrets
- The EU Approach to PSM

Day 4:

How to comply with PSM Requirements

- Program Quality Verification Inspections
- Planning PQV Inspections

Methods of Analysis - with several examples

- What IF Analysis
- Checklist Analysis
- HAZOPS

- Guidewords & Steps
- Team Management and specifications
- Implementing Management of Change

Group Exercise Performing a HAZOP

FMEA What it is and how it works, and how to conduct and FMEA in detail

Putting numbers on the evaluation of risk

- Fault Tree Analysis – a primer on how to conduct an FTA or Event Tree Analysis
- Fishbone (Ishikawa) Analysis
- Root Cause Analysis
- Bowtie Analysis
- Weibull and Markov Chains

Day 5:

- Evaluating the Consequences – or what could happen and how bad will it be?
 - Consequence Analysis: Thermal, Inhalation, Radiation
 - The Colored Books & Numerical Risk Calculations
 - Cameo Suite & Wiser
- How to Present & evaluate the consequences
- Types of Presentations
- Costing and Cost Presentations for Risk analysis
- Group Exercises
- Final Test
- Presentation of Certificates

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures

- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Fees:

To be advised as per the course location. This rate includes participant's manual, Hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

