

# H S E

HEALTH

SAFETY

ENVIRONMENT



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## **Fire Safety Risk Assessment and Fire Investigation**

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**Duration:** 5 Days

### **Module 1 (5 Days) Fire Risk Assessment**

#### **Introduction**

Industries involving the use of, storage of, or handling and transporting of hazardous or combustible materials possess potentially serious fire, life safety and environmental hazards if safe practices are not adhered to. Accordingly

there is a plethora of international legislative codes and regulations for the process and transportation of explosive and flammable materials, all demand special attention.

The purpose of Fire Risk Assessments is to improve Safety Management Systems, NOT simply to collect data and file. The assessments have to be both "suitable and sufficient", must never be carried out in isolation but in a practical and systematic way. Naturally, there cannot be an "off the shelf solution". Every workplace is different. It is vital that assessors are able to seek commitment from the top of the organization and to consult with all relevant personnel; this will ensure a company-wide acceptance of the findings.

Paradigms are being shifted to emphasize the concept of fire assessment and safety systems as organizations attempt to effectively reduce losses and protect their reputation. So much so that all employees must have an understanding of fire, how quickly it can spread, and how devastating its

impact can be. With this knowledge, employees will be better equipped to recognize fire hazards in their work environments and take steps to introduce and practice fire safe behaviors. Industrial Fire Risk Assessment, Safety and Emergency Planning includes compliance with applicable regulations, adopting suitable best practices, and applying common sense.

This dynamic Module provides the delegate with all the requirements and instruction on what to do and what not to do when carrying out Assessments and implementing the findings.

## **Module 2 (5 Days) Fire Investigation**

### **Introduction**

This Module will cover state of the art investigation practices for individuals new to fire investigation as well as provide new concepts for those familiar with fire investigation. Students will be able to inspect and evaluate fire scenes, determine area of origin, the ignition source, the materials first ignited and the ignition sequence of the fire. Students will learn to prepare diagrams, record the fire scene with photographic documentation and establish field notes of the incident site. Students will be able to identify, collect and preserve evidence using the proper physical and legal procedures.

This Module will provide information that will allow the student to make presentations in legal settings as well as aid in the preparation of reports that will be useful in the fields of fire investigation, fire prevention and injury prevention.

This Module is taught using a systematic approach discussed in NFPA 921 and NFPA 1033.

## **Who should attend?**

This interactive seminar will benefit anyone who desires to develop an organizational understanding of Fire and Safety competences to allow them to carry out Fire Risk Assessment processes, prepare emergency plans and so enhance their careers. It is also intended for those who are responsible for enhancing fire safety awareness and emergency planning practices in industrial applications:

- health safety and environment professionals and representatives;
- emergency response team members/leaders;
- fire and security officers
- Others who may find themselves in a leadership position when responding to a major emergency or involved in implementing the company's Health Safety and Environmental Safety Management Systems.

## **Course Objectives:**

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### **Module 1 (5 Days) Fire Risk Assessment**

#### **Objectives**

- Learn how to carry out a comprehensive Fire Risk Assessment
- Means of detecting and giving warning in the event of a fire
- Means of escape and emergency lighting
- Understand the requirements for Signage and Fire-fighting equipment
- How to provide Staff with information on risks and training
- Understand that requirements of a comprehensive Fire Risk Assessment and Training Needs Analysis for key responders
- A safer industrial environment for you and your company

- Learn the techniques for implementing effective Safety Management Systems and Emergency Plans
- Understand the necessities for an efficient and timely response

## **Module 2 (5 Days) Fire Investigation**

### **Objectives**

- Understand the reasons for accurate fire scene examination
- Describe and use a systematic approach to the examination of a fire scene
- Understand the physical property of fire and its effects on fuels present at a fire scene
- Understand the application of burn patterns to the area or point of fire origin,
- Understand sources of ignition and its application to the fuel present.
- Know various methods of fire scene security
- Accurately sketch a fire scene and understand the importance of evidence locations.
- Understand proper methods of photographing a fire scene showing those items necessary for proving the origin and cause of the fire.
- Be able to take efficient and accurate notes concerning the scene and witness statements
- Understand the RCW and other specific laws pertaining to the criminally caused fire. Have a basic understanding of the Criminal Justice System and its relationship to the criminally caused fire.
- Describe and understand some motives for the intentionally caused fire.



## **Course Outline:**

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### **Module 1 (5 Days) Fire Risk Assessment**

#### **Program Agenda**

#### **Principles of Industrial Fire Risk Assessment, Safety & Emergency Planning**

- Fire precautions regulations and legislation
- Basics of Fire Safety and the cost of fires
- Four steps to a successful Fire Risk Assessment
- Methodology and checklist for carrying one out
- Checklists – ignition and fuel sources
- Design and construction requirements for exit routes
- Checklists - Escape Routes; Lighting; Stairways; Emergency Exits; Escape Doors; Alarms & hardware
- Firefighting equipment and fixed extinguishing systems
- Evacuation Procedures - including Bomb Threats
- Workshop - Theory into practice - Delegates to carry out an inspection and Fire Risk Assessment

#### **Effective Safety, Fire Prevention and Emergency Planning Program**

- Fire prevention policy:
- Portable Fire Extinguishers (PFE)
- Class of Fires
- Class Discussion on use and limitations of PFE followed by PFE Quiz
- Fire Protection and Fire Prevention Measures
- Safety and your emergency action plan/s
- Information gathering and processing of plans
- Consider by function, the personnel involved in the planning process
- Twelve emergency planning steps & Roles and Responsibilities

- Workshop - Theory into practice - Delegates to compile an Evacuation Plan
- Conducting a Training Needs Analysis and the Identification of roles – Fire Wardens, Incident Controllers, others?
- Case Study – Piper Alpha – when all the planning goes wrong

### **Communications, Emergency and Evacuation Drills and Exercises**

- Guidance on developing fire training, drills and exercises;
- Exercise Design Formula
- Learning from evacuation drills & fire-fighting exercises
- Feedback for future assessments, emergency action plans & procedures;
- Checklists for a prolonged incident involving an evacuation
- Emergency Centers, Staffing, facilities and reporting facilities
- Alerting and Warning. Communicating with staff, neighbors or public
- Communications. Public/media, maintain continuity flow of information
- Reputation Management
- Case Study – Mexico City, Pemex 1984

### **Essentials of Safety Management Systems**

- European Union Directives: Control of Major Accident & Hazard Regulations
  - On Site Safety Management Systems
  - On and Off-site Emergency Plans
- Case Study – Flixborough 1974 UK
- Incident Command Systems
- On-scene management. How to quickly establish a reliable information flow from the scene, co-ordination all resources, on and off site;
- Post-incident evaluations, de-briefs and reports
- Case Study – Texas City, USA, 2005

## **Maintenance of equipment, plans and procedures - exercising**

- Workshop and Class Exercise – “Safe operation of an Industrial Site”;
- Human behavior and Fire Safety
- Case Study – Buncefield Oil Depot, UK December 2005
- Program Evaluation
- Discuss personal action plans
- Module summary - Open Forum – time permitting

## **Module 2 (5 Days) Fire Investigation**

### **Program Agenda**

- Fire Behavior, Chemistry of Fire, Determining Point of Origin, Accidental Ignition Sources
- Incendiary Fire Causes, Incendiary Devices, Tools of the Trade, Photography, Fire Scene Notes & Sketches, Diagrams
- Post Incident Investigation, Systematic Steps of Investigation, Motives For Fire Setters, Juvenile Fire Setters, Evidence Collection
- Basics of Insurance, Legal Aspects, Interviews & Interrogation, Vehicle Fire Courtroom Preparation & Deposition Preparation, Fatality Fire, Class Room Investigation