



Arabian Institute For Training

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# Firefighting System Design & Review for Oil and Gas Industry

## INTRODUCTION

- There are many hazardous fluids & gases present or generated in oil & gas plants or refinery units. These fluids & gases can be flammable or inflammable in nature and can cause fire. To prevent fire from happening, the facility is to be protected with some fire protection system that is provided based on the hazardous nature of the fluids & gases in order to prevent a catastrophic loss of people, facilities and equipment. Firefighting system design in plants are essential to provide and enhance firefighters to deal more effectively with fire.

This training course will cover firefighting system and design criteria in oil and gas plants referring to The National Fire Protection Association (NFPA) standard and SHELL DEP covers:

- Design and calculation fire protection system
- Fire safety assessment
- Fire water system designed to meet the fire water flow requirement
- Inspection, test and maintenance fire protection system
- This training course will develop the participants' abilities and skills to design, review and test firefighting system to mitigate risks and help prevent disasters in facilities - destroying the assets and causing pollution to the environment & fatality to human life.

Participants attending this Firefighting System Design & Review for Oil and Gas Industry training course will develop the following competencies:

- Firefighting system active and passive and its application refer to NFPA and Shell DEP
  - Fire safety assessment with rating system calculation
  - Fire water system with design and calculation
  - Sprinkler system included design and calculation
  - Fire protection system and maintenance
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## **PROGRAMME OBJECTIVES**

This training course aims to help participants to develop the following critical objectives:

- Understanding the design for fire protection system in refineries, with reference to NFPA and Shell DEP
- Be able to design and calculation fire protection system
- Be able to perform fire safety assessment
- Be able to inspection, test and maintenance fire protection system
- Be able to review fire protection system

## **WHO SHOULD ATTEND?**

This Firefighting System Design & Review for Oil and Gas Industry training course is suitable for a wide range of professionals, but will be particularly beneficial to:

- Firefighters in Oil and Gas industry
- Technical fire prevention Engineers in refinery or gas plant
- Firefighting System Design Engineer

## **TRAINING METHODOLOGY**

- This training course will combine presentations with instructor-guided interactive discussions between participants relating to their individual interests. Practical exercises, video material and case studies aiming at stimulating these discussions and providing maximum benefit to the participants will support the formal presentation sessions.

## **PROGRAMME SUMMARY**

- This training course on firefighting system design & review for oil and gas industry covers a comprehensive discussion on the complexity of firefighting system designs in refineries with reference to standards such as the NFPA. This training course gives understanding to apply firefighting system designs specific in Oil and Gas and review of the facility in compliance with the standards.

## **Programme Outline**

### **Firefighting System in Petroleum Refinery**

- Introduction firefighting system (passive and Active systems)
  - The key elements of active and passive fire protection
  - Designing passive and active fire protection systems
  - International fire design codes NFPA
  - SHELL DEP and its application in oil industry firefighting system design
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## Fire Safety Assessment

- Fire risk
- Fire design
- The Performance based fire safety design
- Fire rating systems and calculation
- Fire testing

## Fire Water System in Oil and Gas

- Fire water demand calculations
- Firewater network design calculations
- Fire water suppression system
- Fire water storage
- Fire water pumps

## Sprinkler System in Oil and Gas Plant

- Type of sprinkle systems
- Sprinkler system design
- Sprinkler design calculations
- Sprinkler system inspection, maintenance and testing

## Fire Protection System

- Hydrocarbon tank fire protection and design calculations
  - Hydrocarbon processing plant and design calculations
  - Maintenance and test stand pipe system
  - Maintenance and test fire alarm system
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