

# **Advanced Incident Investigation and Root Cause Analysis**

**IMPROVING EFFICIENCIES THROUGH CONTINUAL  
IMPROVEMENT**

## Introduction

This advanced incident investigation course is a five day high level course that goes beyond the normal aspects of incident investigation and further into the analysis of human behaviour and the contributing factors thereof to the incident as well as identifying programs to be used to reduce or eliminate a recurrence of that behaviour.

This five day course encourages team work and team analysis of the gathered data as well as how to effectively manage brain storming sessions, walk through's and other activities that are required in order to conduct an in depth and other level investigation.

## Typical Course Candidates

- Engineers – process, process safety, and mechanical
- Operations and Maintenance Staff – senior operators, maintenance technicians, supervisors
- Process reliability staff
- Process quality control/assurance staff
- Those seeking techniques to analyse facilities, systems, and operations proactively and reactively
- Those seeking new prevention and mitigation approaches to solve human performance problems

## You Will Learn

- How to meet regulatory requirements for incident investigations
- How to develop and implement a structured program
  - Designed for learning from incidents
  - Why and how to define near misses
  - How to train others to recognize and report incidents
  - Tracking and analysing data
- How to initiate and conduct an investigation
  - Establishing an effective team quickly
  - Methods for collecting different types of data, including effective interviewing skills
- How and when to apply Systemic Cause Analysis for investigating process and non-process incidents
  - Includes event and condition identification
  - Using Fault Tree analysis to determine gaps in the system
  - Using the 5-Whys technique for identifying root causes
  - Using the Root Cause key words for identifying root causes
- How to develop appropriate immediate corrective actions to address immediate causes at various levels
- How to develop appropriate systemic preventive actions to address underlying causes at various levels
- How to structure, write and manage reports

## YOUR PARTNER IN SUSTAINABLE RISK CONTROL

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- Learn the underlying reasons why human errors occur
- Learn how to correct human behavioural issues before they cause problems
- Learn how to assist others in your organization in dealing with human behaviour in your operations
- Via actual industry examples and workshops, learn key points and practice your new skills

## Course Content

### Module 1

- Basics of incidents and investigations
- Workshop: Identifying causal factors and root causes
- Analysing data (causal factor charting)
- Workshop: Causal factor charting

### Module 2

- Analysing data (cause and effect tree analysis)
- Workshop: Using cause and effect tree analysis
- Analysing data (change analysis)
- Determining root causes
- Workshop: Identifying root causes using the Root Cause Map technique
- Developing conclusions and recommendations

### Module 3

- Initiating the investigation
- Gathering EMP and other data
- Overview of trending data
- Selecting problems for analysis
- Overview of developing and implementing an incident investigation program
- Workshop: Simulated incident investigation

### Module 4

- Goal of human error analysis
- Understanding human error and its influences
- What is human error?
- Human error categories
- Workshop: Categorizing human errors
- Simple model of human behavior

### Module 5

- Analysis techniques
- Error-likely situation checklist analysis
- Walkthrough analysis
- Workshop: Applying the walkthrough analysis technique
- Guide word analysis
- Workshop: Applying the guide word analysis technique
- Prevention and mitigation strategies
- Common human error prevention techniques
- Organizational responsibilities for human error prevention and mitigation
- Overview of human factors codes and standards
- Workshop: Developing effective recommendations