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Human Error Investigation and Root Cause Analysis

Overview

Human error plays a significant role in contributing to many mishaps. Approximately 70 %-90% of accidents in complex and high technology system are caused by human error such as Chernobyl, King Cross undergrounds fire, and Challenger accidents, Tenerife runway collision and many more. Understanding and preventing human error can improve system safety and reduce safety risk caused by human error.

This course will allow you to gain many benefits from attending this training course. You will learn how to analyze casual factors and underlying causes that contributed to human error, how to collect necessary data needed to investigate the underlying causes of human error and how to prevent a recurrence of those errors. The interactive training workshop is well-equipped with powerful tools and techniques required and combining with a recognized expert that enable you to gain in-depth understanding. The realistic hand-on exercises and ample examples are used intensively throughout the course.


This training seminar gives you a clear presentation of human error investigation concept and how to prevent and reduce them. This course will allow you to understand a comprehensive set of practices, tools, and techniques required to investigation of human error and how to prevent and reduce human errors.

Objectives

- The 2 days interactive training workshop will enable you to learn how to
- Understand a key concept of human error that occur in your complex environment
 - Identify a key contributing factors and underlying causes of human error
 - Inspection and evaluation of defences against errors
 - Structured investigation process to human error
 - Identify corrective action to prevent and reduce human error
 - Learn and appreciate practical tools and techniques required to investigate human error

Course Outlines

1. The accidents in complex and high technology system (safety case)
2. Accident/Incident Investigation Process
 - Set up investigation team
 - Event notification and detection
 - Data and evidence gathering
 - Data analysis (Identify casual factors and root causes)
 - Remedial actions development
 - Discussion, conclusion, and recommendation
3. Root causes analysis tools and techniques
 - Event and casual factor charting (ECF)
 - Barrier analysis
 - Cause tree method
 - Human Performance Evaluation
4. Human Error investigation
5. Human contribution to accidents/incidents
 - Human error contribution to the breakdown of complex system
 - Human error concepts (Person and System approach)
 - Types of human error
 - Skill-based, rule-based, and knowledge-based
 - Reason model of Unsafe Acts
 - Human Information processing error

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	Training Course	<i>Copyright @ May 2009</i>	Page : 2/2

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6. Human factor data collection
 - The SHELL Model
 - Liveware : Physical Factors, Physiological Factors, Psychological Factors, Psychosocial Factors
 - Liveware-Liveware
 - Liveware-Software
 - Liveware-Hardware
 - Liveware-Environment
7. Human Performance and Limitations approach to accident analysis
 - Human Information Processing
 - Sensory/Vision/Hearing
 - Perception
 - Attention
 - Memory
 - Decision Making
 - Response execution
 - Situation Awareness
 - Workload
 - Stress
 - Fatigue
8. System approach to human error analysis
 - Reason model
 - ICAM model
 - Human Performance Evaluation Process (HPEP)
9. Real case studies
10. Hand-on exercises

Who should attend

Safety manager, safety engineer, risk manager, and investigator

Duration

2 days

Key Points about This Course

- You will learn how to understand the human error concept
- You will learn how to understand the human factor investigation mode
- You will learn how to set up a structured investigation process
- You will learn how to gather and collect data and facts surrounding the events
- You will learn how to identify casual factor and underlying causes of events
- You will learn how to develop remedial actions to prevent a recurrence of undesired events
- You will learn how to facilitate root cause analysis tools and techniques

Learning Outcomes from this course

- You can understand a key concept of human error that occur in your complex environment
- You can identify a key contributing factors and underlying causes of human error
- You can inspection and evaluation of defences against errors
- You can structured investigation process to human error
- You can identify remedial actions to prevent and reduce human error and prevent accidents/incidents
- You can apply practical tools and techniques required to investigate human error