



HSE198

Incident Investigation for Supervisors & Engineers

Course Introduction:

This course teaches how to lead investigations and root cause analysis using various techniques such as Causal Factor Charting, Fault Tree Analyses, and Root Cause Charts.

Course Objectives:

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

- Meet regulatory requirements for incident investigations
- Develop and implement a structured program designed for learning from incidents, why and how to define misses
- Train others to recognize and report incidents including planning for trending of data, pareto charts, weibull analysis for failures and other graphical and predictive techniques
- Initiate and conduct an investigation
- Establishing an effective team quickly
- Apply methods for collecting different types of data, including effective interviewing skills
- Apply causal factor and root cause analysis for investigating process and non-process incidents includes event and condition charting (causal factor charting), filling data gap using fault tree logic, "5-Whys" technique for finding root causes and PII's Root Cause Chart™ for categorizing root causes
- Develop appropriate recommendations to address root causes at various levels to avoid future incidents
- How to structure reports
- Learn key points and practice new skills via actual industry examples and workshops

Who Should Attend?

This course is intended for engineers, process, process safety, and mechanical - operations and maintenance supervisors.

Course Outline:

Day 1:

Pre-Test

- Basics of incidents and investigations
- Workshop: Identifying near misses (near hits)
- Initiating the investigation
 - Gathering data

- Basics
- Gathering data from people
- Gathering data from documentation, parts, and chemicals
- Assigning personnel and tasks
- Workshop: Identifying key data needs
- Analyzing data for ALL causal factors

Day 2:

- Workshop: Causal factor charting techniques
 - Pareto Analysis
 - Fishbone Analysis
 - Weibull Analysis
 - Bowtie Analysis
 - Examples of each type of analysis
 - Fault Tree Analysis
 - Fuzzy Fault Trees
 - Markov Chains & Bayesian Analysis
 - Failure Modes Effects Analysis
 - Reporting Feedback
- The investigator's tool kit
 - Cameras
 - Analytical Tools
 - Laboratory – type and kinds
 - Model Shop & Machine Shop
- Practical Techniques
- Bridging gaps in data
- Workshop: Using the tools & charts to find out most probable causes

Day 3:

- Refining your analysis to get to the real root causes
- Determining ALL other contributing causes of each causal factor
- Workshop: Identifying root causes using the "Root Cause Chart" techniques & others for causal identifications
- Developing conclusions and recommendations
- Consensus and disagreements

Day 4:

- Team Management

- How to write the report- what's in it
- Workshop: Conclusions and recommendations based on facts
- The minority report as alternative theories. What, where, and when
- Overview of results trending

Day 5:

- Preparing for the Case Study
- Case Study: Using all rules and methods taught in class to investigate actual incident in real-time setting
- Practical Exercises using real data
- Small teams will:
 - Determine data needs
 - Gather data (interview role-players, get data from computer control systems, etc.)
 - Use causal factor charting and fault trees to analyze data and determine ALL causal factors
 - Use PII's Root Cause Chart™ to determine the multiple root causes of each causal factor
 - Draft effective recommendations and make presentation to class

Post Test

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

