

Applied Root Cause Analysis Methods on Oil and Gas Facilities Training

Course Price

£3050

Course Description

This intensive 5 day Root Cause Failure Analysis training (RFCA training) provides the concepts needed to effectively perform industrial troubleshooting investigations. It covers the methodology to perform RFCA one of the hottest topics currently in maintenance engineering. This course will cover how to establish and apply a general troubleshooting methodology as well as how to conduct process/equipment specific troubleshooting.

Course Objectives

At the end of this training course, participants will be able to:

1. Identify common manufacturing errors and deviations
2. Understand how to prioritise failure events to analyse, preserve failure data, and order a failure analysis
3. Perform Root cause analysis for all operating parameters to include '5 whys', 'Fishbone', and Pareto analysis tools. To implement corrective actions to optimize production and maintain quality.
4. To recognise how different components of a facility interact with each other, and the significance of these interactions
5. How to gather, validate and utilise the data needed for troubleshooting for production optimisation
6. Typical causes of problems for the main types of processes and equipment used in the Upstream oil and gas industry

Who Should Attend

All personnel who are required to facilitate and participate in Root Cause Analysis exercise. To include Process/Facilities engineers, Facilities Engineering team leaders/supervisors, Senior Facilities operational personnel and HSE personnel.

Course Content

- Systems Failure Analysis
- Systems failure analysis Introduction
- What is the problem?
- Defining the problem
- Production optimisation
- Clearly define problem and analysis boundaries
- Fault tree analysis introduction
- Design of experiments and systems failure analysis
- Nature Of cause
- Identify, collect, and evaluate relevant data
- Human and system reliability
- Analysis pitfalls
- Team assignment
- Select/tailor analysis tools and techniques
- Corrective action
- Conduct interviews and small-group brainstorming sessions
- Identify major contributors to problem occurrence
- Tools & Techniques – Flowcharting
- Develop ranked list and rationale for potential root causes
- Document and review results
- Evaluate each major contributor using a hierarchical Structure of root cause categories
- Allocate performance measure losses to root cause Categories
- Types of oil and gas processing facilities
- Typical processing facility block flow diagrams
- System trouble versus Equipment-Specific trouble
- Fundamentals of root cause analysis and methodology
- Identifying the best solution
- Cost/profitability, safety,

Day 1

- Introductions
- Safety Briefing covering muster procedures.
- RCA course outcomes
- What is Root Cause Analysis
- Why do we carry out Root Cause Analysis
- When do we carry out Root Cause Analysis
- Systems failure analysis Introduction
- Defining the problem
- Types of Oil Gas Production Facilities :

PowerPoint: Oil and Gas overview

Oral Quiz to assess delegate's level of understanding

Day 2

- Types of Incidents

- Production Optimization
- Problem and Analysis Boundaries
- Fault Tree Analysis Introduction
- Design of Experiments
- Nature of the cause
- Identify, collect, and evaluate relevant data
- Process Flow Diagrams PFDs

Document: The Accident Investigation Process

Video: Design of Experiments.

Video: Fault Tree Analysis FTA

Oral Quiz to assess delegate's level of understanding

Day 3

- Human and system reliability
- Analysis pitfalls
- Team assignment
- Select/tailor analysis tools and techniques
- Why Tree
- Fishbone diagram analysis
- Pareto analysis
- Types of Oil Gas Production Facilities : Today's topic FPSOs

Video: Root Cause Analysis Course – 5 Whys and Fishbone Diagram

Video: FPSO Production, Offloading, Billy Pugh personnel basket

Syndicate activity: 5 Whys, Fishbone and Pareto Analysis tool practise

Oral Quiz to assess delegate's level of understanding

Day 4

- Corrective action
- Conduct interviews and small-group brainstorming
- Tools & Techniques – Flowcharting
- Develop ranked list and rationale for potential root Causes
- Document and review results
- Evaluate each major contributor using a hierarchical structure of root cause categories
- Allocate performance measure losses to root cause categories
- System trouble versus Equipment-Specific trouble
- Fundamentals of root cause analysis and methodology

Syndicate activity: Concord aircraft RCA

Video: Concorde — Root Cause Analysis — Cause Mapping

Oral Quiz to assess delegate's level of understanding

Day 5

- Identifying the best solution
- Cost/ profitability, safety,
- RCA complete Syndicate exercise 'Titanic'
- Review and question / answer
- Written course feedback

- Award Certificates.

Syndicate activity: Titanic RCA

Video: Root Cause Analysis – Titanic

CPD Unit

Continuing Professional Development

35 HOURS CPD