Training Title
PREPARE RCA FOR BASIC INCIDENT AND TAKE CORRECTIVE ACTIONS

Training Duration
5 days

Training Venue and Dates

REF ME090	Prepare RCA For Basic Incident And Take Corrective Actions	5	04 – 08 February, 2019	$6,250	Amsterdam, Netherlands

Training will be held at any 5 Star Hotels. Exact venue will be informed later

Training Fees
- **6,250 US$ per participant for Public Training including Course Materials/Handouts, Tea/Coffee, Refreshments & International Buffet Lunch**

Training Certificate
Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING INTRODUCTION:
The natural tendency of many individuals and organisations when presented with a   problem is to jump to a solution, any solution. They do not systematically analyse the
problem to determine a root cause before considering potential solutions.Reliability   engineering and predictive maintenance have two major objectives: preventing catastrophic failures of critical plant production systems and avoiding deviations from acceptable performance levels that result in personal injury, environmental impact, capacity loss, or poor product quality.

TRAINING OBJECTIVES:

This course provides clarification of regulatory expectations and guidance,and the Essential skills n ecessary to ensure effective and efficient investigations. Topics will examine each step of the inves tigation process from failure identification and notification through documentation.
Participants will practice root cause analysis techniques and Identify corrective and/or preventive actions towards successful remediation.

At the end of this course you should be able to:
- **Deal with the root causes of failures (Physical Roots and Human Roots.) in Industrial Activities.**
- **Know How the Multiple Roots Interact.**
- **Handle the General Analysis Techniques and the Root Cause Failure Analysis Methodology**
- **Carry out Troubleshooting (as an Extension of Failure Analysis) and to be acquainted with the Causes of Machinery Failures. How to analyze Machinery Component Failures**
- **Establishing Safe Operating Limits for Machinery and Regulatory Compliance Issues.**

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- **Distinguish the Sources of Stresses, Overload failures, Understanding and Recognizing Corrosion and the available effects as well as the Lubrication and co relation with Wear.**
- **Understand the Interpretation of Collected Data through Vibration Analysis**
- **Formalize Failure Reporting as a Teaching Tool**
- **Communicate the "Seven-Cause Category Approach" to Root-Cause Failure Analysis**

WHO SHOULD ATTEND

This course is designed for personnel who are responsible for the failure and deviation investigation process in a GMP (global process management) environment and maintenance engineers. This course will be practical in its application and particularly valuable to those newer to this field or those who wish to refresh their knowledge of root cause analysis and investigative techniques.

TRAINING METHODOLOGY

A combination of class lectures, case studies or examples and group discussion. The course will be intensive but practical and highly interactive. Participants are encouraged to participate actively and to ask questions especially pertaining to specific problems. At the end of the session there will be a question-and-answer session to allow participants enough time to seek answers to grey areas and to seek clarifications to any misconceptions or problems they may have regarding the subject concerned to the course. There will also be some indoor experiential activities to enhance learning.

- **30% Lectures**
- **30% Workshops and work presentation**
- **20% Group Work& Practical Exercises**
- **20% Videos& General Discussions**

COURSE CONTENTS:

1. What is failure
-THE CAUSES OF FAILURES
-The purpose of RCFA (Root cause failure analysis)
-EFFECTIVE USE OF THE ANALYSIS
-PERSONNEL REQUIREMENTS
-When to use of RCFA method

2. Understanding the roots
- PHYSICAL ROOTS
- HUMAN ROOTS
- Problem- Solving Process
- Define and Verify Root Causes
- Corrective Actions

3. RCA Techniques

The Fault Tree Approach& Role of Fault Trees in a PRA
The 5(five) whys
Fault Tree Analysis
Fault tree construction

4. Pareto Analysis

5. Fishbone Diagram

6. HUMAN ERROR & ITS CAUSES

7.Risk management
-QUANTITATIVE RISK (QRA)
-QUALITATIVE RISK
-Performance measurement

8. RCM Principles and Methodology
-RELIABILITY AND RISK PREDICTION
-ACHIEVING RELIABILITY AND SAFETY-INTEGRITY
-FAILURE RATE AND MEAN TIME BETWEEN FAILURES
-THE METHODOLOGY
-THE RELIABILITY PREDICTION METHOD
-The RCM task selection
-Methods of modeling
-The RCM implementation
-FMEA (FAILURE MODE AND EFFECT ANALYSIS)
-SAFETY INTEGRITY LEVELS (SIL)

9. FAILURE REPORTING
-Collecting the Data
-Reporting Equipment Failures
-Reporting Software Problem

10.ANALYSIS
Failure Analysis Process
Failure Review Board
Root Cause Analysis
Failed Parts Procurement
Corrective action

11.Maintenance management system
-Reactive Maintenance
-Preventive Maintenance
-Predictive Maintenance

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-Proactive Maintenance
-Reliability Centered Maintenance
-Equipment Reliability Metrics
-Lateral learning
-LEARNNING FROM FAILURE
-Performance monitoring

12. Preventive / Corrective Actions (CAPA) Guidelines
-Corrective Actions
-Preventive Actions
-Differences between Corrective and Preventive Actions
-CAPA Procedures (Report Source, Explanation of the Problem, Evidence of the Problem.)
-Evaluation (Potential Impact Assessment of Risk. Remedial Action.)
-Investigation (Objective, Procedure, Responsibility / Resources.).
-Analysis (Possible Causes / Data Collection, Results and Data, Root Cause Analysis)
-Action Plan.
-Action Implementation

NOTE:
Pre & Post Tests will be conducted
Case Studies, Group Exercises, Group Discussions, Last Day Review &Assessments will
be carried out.

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