IDENTIFY OPERATIONAL UPSETS, REVIEW & VALIDATE IN OIL & CHEMICAL PLANTS

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TRAINING TITLE

IDENTIFY OPERATIONAL UPSETS, REVIEW & VALIDATE IN OIL & CHEMICAL PLANTS

VENUE

Dubai, UAE

DURATION

5 Days

DATES

16 - 20 May 2021

PRICE

US$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet.

TRAINING INTRODUCTION

This course will cover how to establish and apply a general troubleshooting methodology as well as how to conduct process/equipment specific troubleshooting. Definitions of good/normal performance will be discussed for each process/equipment type covered. Data gathering, validation and utilization procedures will be discussed. Criteria to use when evaluating possible problem solutions will also be covered. Real-world exercises will be utilized throughout the class to reinforce the learning objectives. Both onshore and offshore facilities will be discussed.

TRAINING OBJECTIVES

Upon completion of this course, participants will be able to:

- Enrich knowledge on troubleshooting through various practical exercises carry out during the course (Specify the limitations to plant problem solving)
- Apply the methods of risk analysis particularly in process plant troubleshooting
    - Identify various accidents and upsets in the process plant and know the causes, actions taken & lessons learned
    - Discuss the risks associated with process troubleshooting and the applicable safety procedures to be followed.
    - Describe how Heat Exchange Equipment function

- Recognize typical problems and identify possible causes of Heat Exchangers
- Describe how fired heaters function
- Recognize typical problems and identify possible causes fired heaters
- Know Fuel and Air Systems and their operating problems and upsets and how to rectify the problems.
- Identify the components of Flare System and its operating problems and upsets and how to rectify the problems.
- Identifying physical principles and forces that occur in rotating equipment, focusing on pumps and compressors
- Using operating and troubleshooting techniques for pumps and compressors
- Identify the Impurities in Water.
- Know the Different Methods for Water Treatment.
- How to Control Cooling Water Quality.
- How to Control Potable Water Quality.
- How to Control Boiler Water Quality.
- How to Control Waste Water Quality.
- Understand and Identify the Operating Problems.
- Know the Different Types of Storage Tanks.
- Know how to Operate Storage Tanks.
- Identify the Hazardous Conditions and Safety Procedures for Storage Tanks.
- Define abnormal conditions such as high liquid level, heat loss, tanks getting dry, plugged outlets
- Handle abnormal conditions such as loss of power, loss of control, loss of air, shortage of man power

TRAINING AUDIENCE

Process Engineers, Plant Forman, Section Heads, Plant Supervisors, Operators and technical staff who involved in Operation and Maintenance of Oil, Gas, and Chemical plant operations.

TRAINING OUTLINE

1. Oil and Chemical plant Equipment Trouble Shooting

1.1 Principles of Heat Transfer

1.1.1 Introduction

1.1.2 Heat

1.1.3 Temperature and Heat

1.1.4 Latent Heat

1.1.5 Modes of Heat Transfer

1.1.6 Heat Transfer between Fluids

1.1.7 Function of Heat Transfer Equipment

1.2 Heat Exchanges Equipment Operation and Trouble Shooting

1.2.1 Shell and Tube Exchangers

1.2.2 Double pipe Exchangers

1.2.3 Indirect Heaters

1.2.4 Air Cooled Exchangers

1.3 Fired Heaters Operation and Trouble Shooting

1.3.1 Performance Monitoring

1.3.2 Fired Heater Operation and Trouble Shooting

1.4 Gravity Separators Operation and Trouble Shooting

1.4.1 Separation Process

1.4.2 Principles of Separation

1.4.3 Gravity Separation

1.4.4 Phases of Separation

1.4.5 Separation System Problems

1.4.6 Factors Affecting Separation

1.4.6 Separators Operation and Trouble Shooting

1.5 Atmospheric Fractionators Operation and Trouble Shooting

1.5.1 Principles of Distillation (Fractionation)

1.5.2 Reflux

1.5.3 Reboiling

1.5.4 Fractionators Operation and Trouble Shooting

1.6 Vacuum Fractionators Operation and Trouble Shooting

1.6.1 Introduction

1.6.2 Reduced Crude Flashing

1.6.2.1 Vacuum Bottoms Handling

1.6.2.2 Entrainment Control

1.6.2.3 Product Condensation

1.6.2.4 Vacuum Pressure Measurement

1.6.3 Vacuum Fractionator

1.6.4 Steam Jet Ejectors

1.6.4.1 Introduction

1.6.4.2 Operating Principle

1.6.5 Vacuum Tower Control System

1.6.6 Operation

1.6.6.1 Startup

1.6.6.2 Troubleshooting

1.7 Desalter

1.7.1 Desalter Operation

1.7.2 Desalter Troubleshooting

1.8 Pumps Operation and Trouble Shooting

1.8.1 Basic Pump Hydraulics

1.8.2 Calculating Total Head

1.8.3 Horsepower Calculations

1.8.4 Net Positive Suction Head (NPSH)

1.8.5 Pump Performance Curves

1.8.6 System Performance

1.8.7 Operation, Control and Trouble Shooting

1.9 Compressors Operation and Trouble Shooting

1.9.1 The Theory of Compression

1.9.2 Centrifugal Compressors Operation, Control and Trouble Shooting

1.9.3 Reciprocating Compressors Operation, Control and Trouble Shooting

1.9.4 Operation, Control and Trouble Shooting

2. Utilities Systems Operation and Trouble Shooting

2.1 Water Treatment Systems

2.1.1 Introduction to Water Treatment

2.1.1.1 Suspended Solids

2.1.1.2 Dissolved Solids

2.1.1.3 Dissolved Gases

2.1.2 Industrial Water Treatment

2.1.2.1 Primary Water Treatment

2.1.2.2 Secondary Water Treatment

2.1.3 Potable Water Purification

2.1.3.1 Disinfections of Water

2.1.3.2 Sterilization of Water by Chlorine, Ozone and Chloramines

2.2 Waste Water Systems

2.2.1 Main Sources of Pollution

2.2.1.1 At the Production

2.2.1.2 During Transportation

2.2.1.3 During Refining

2.2.2 De – Oiling of Water

2.2.2.1 Purpose of De – Oiling

2.2.2.2 API Interceptor

2.2.2.3 Parallel Plate Interceptor (PPI) and Corrugated Plate Interceptor (CPI)

2.2.2.4 Flotation Units

2.2.2.5 Flocculation Units

2.3 Fuel Systems

2.3.1 Typical Fuel Gas System

2.3.2 Typical Problems

2.3.2.1 Pressure Variation

2.3.2.2 Liquid in the Gas

2.3.2.3 Change in Fuel Gas Composition

2.4 Air Systems

2.4.1 Instrument Air

2.4.1.1 Typical Instrument Air Supply Systems

2.4.1.2 Instrument Air Distribution Systems Operation and Trouble Shooting

2.4.2 Utility Air

2.4.2.1 Typical Utility Air Supply Systems

2.4.2.2 Utility Air Distribution Systems Operation and Trouble Shooting

2.5 Storage Tanks

2.5.1 Tank Design

2.5.2 Tank Types

2.5.2.1 Fixed-roof tanks

2.5.2.2 Floating-roof tanks

2.5.3 Operation of Floating-roof Tanks

2.5.3.1 Taking floating-roof tanks into service

2.5.3.2 During the first month of service

2.5.3.3 During service

2.5.3.4 Access to the floating roof

2.5.3.5 Light gravity crudes and heavy roof

2.5.3.6 Vapour pressure of the oil stored

2.5.3.7 Spiking of oil with butane or propane

2.5.3.8 Landing the roof

2.5.3.9 Roof standing on its supports

2.5.4 Hazardous Conditions and Safety Procedures

2.5.4.1 Explosive Air-Vapour Mixtures

2.5.4.2 Ignition Sources

2.5.4.3 Gases Discharged During Gas-Freeing

2.5.4.4 Safety Procedures

4. Process Shutdown (PSD) and Emergency Shutdown (ESD)

4.1 Normal Shutdown Procedures

4.2 Process Emergency Shutdown

4.2.1 Process Failures

4.2.2 Utility failure

4.3 Emergency Shutdown

4.3.1 Fire

4.3.2 Power Failure

4.3.3 Instrument Air Failure

4.3.4 Cooling Water Failure

TRAINING CERTIFICATE

MAESTRO CONSULTANTS Certificate of Completion for delegates who attend and complete the training course

METHODOLOGY

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training

videos and discussions of “real life” issues in their organizations.
The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.