Increasing the Reliability and Efficiency of Heaters in the Refinery Process

A Realistic Method

Introduction

An overview of refinery fired process heaters will be provided, along with a discussion of the most pertinent routine inspection and operational evaluation aspects. A practical methodology for continuous assessment of heater performance and enhanced efficiency and reliability will also be covered in this training course on improving efficiency and reliability in refinery process heaters.

The Middle East has been paying more attention to high-energy process heaters, which have been neglected for years, as a result of rising natural gas prices and a lack of local supplies. These facts have created an urgent need to include efficient ways to raise the efficiency of process heaters into regular refinery operations and, concurrently, lower greenhouse gas emissions. Heat transfer and combustion problems, as well as how they relate to the principles, are becoming more and more familiar to refinery managers and engineers.

The primary goal of this training programme is to give plant personnel involved in process heater performance the fundamental technical background in combustion and heat transfer needed to investigate and comprehend a range of useful concepts that could increase equipment capacity and efficiency in a cost-effective and environmentally responsible way. The seminar sessions will gradually reveal a workable heater evaluation methodology by sprinkling in example calculations. There will also be a discussion of practical methods to achieve efficiency gains through working examples.

This training session on Course N Carry will emphasise:

- Common fuels for process heaters and significant emissions of pollutants
- Types of process heaters, their main parts, burners, and service uses
- Methodology for routine inspection and operational evaluation
- Integrity of heaters and troubleshooting
- Realistic strategies to improve process flow, heater duty, and efficiency

Objectives

Upon completion of this training programme on improving efficiency and reliability in refinery process heaters, you will be able to:

- Determine the primary parts and purposes of the heater.
- Determine the pollutants and carbon footprint of your heater.
- Create a system for monitoring and evaluating heaters.
- Optimise the thermal efficiency and everyday heater operation and provide guidance on efficiency improvement programmes.

Training Methodology

The teacher would be happy to hear any questions or comments from the delegates during this dynamic and interactive training session. In order to give comprehensive covering of concepts and approaches and to obtain access to key skills leading to improved process heater operation, it combines theoretical, practical working activities, and facilitated discussions.

Organizational impacts

This training programme will assist the company in the following ways:

- Better and more organised handling of process heaters
- Increased mechanical integrity and dependability of the equipment
- Reduced fuel consumption and longer heater runs
- Enhanced worker and plant safety
- Employees who are driven by their personal contributions to plant and process improvements
- Employee development and readiness for environmental compliance

Personal Imapct

By participating in this training session, you will:

- Become more knowledgeable about process heaters both theoretically and practically.
- Learn about a methodical approach to the examination and evaluation of heaters.
- Recognise problems with troubleshooting that affect the integrity of the heater
- Obtain the authority to implement operational cost-cutting strategies.
- Become more knowledgeable about how using a heater affects global warming.
- Boost motivation, self-assurance, and rapport within the organisation

Who should attend?

Professionals like operations, reliability, and process engineers who require a deep comprehension of the practical aspects of process heater operation will find significant advantages from this Course N Carry training course.

Additionally, it will be very valuable and interesting to:

- Supervisors of Process Plants and Team Leaders
- Technical service, materials, environmental, and safety engineers; refinery inspection; process heater maintenance;
- Refinery Energy Optimisations Group Members: Applicant with experience operating heater consoles
- Specialists in Integrity Analysis and Risk Assessment

Course Outline

Day 1

Combustion Reactions, Emissions, and Fossil Fuels

- Summary
- Fossil fuels
- Climate change and emissions
- Stoichiometry, combustion processes, and extra air

Day 2

Heaters for the Refinery Process

- An Overview of Types and Common Uses
- Fundamentals of Heat Transfer
- Process Coil Design Burners

Day 3

Introduction to Proactive Heater Operational Assessment

- Evaluations on the performance of heaters
- Inspections of heaters on a regular basis
- Continuous control of draft and surplus air

Day 4

Introduction to the Heater Performance Evaluation

- Operational trend and modification monitoring
- Thermal efficiency and energy balance
- Reporting and establishing operational goals in the short term

Day 5

Introduction to Troubleshooting and Energy Performance

- Troubleshooting
- Reducing carbon impact and conserving fuel
- Redesigning and modernising heaters

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