Super High Pressure Compressor Trouble Shooting and Operation

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Introduction:

Oil and Gas treatment processes require specialized equipment to provide the energy to move large quantities of the liquids and gases through piping and pipelines designed for those purposes. This movement occurs from the oil and gas fields through refining and processing plants, and onwards to the storage and sales points. The equipment used for to move the fluids are termed rotating equipment. These types of equipment are used extensively and provide an increase in pressure for both liquid and gas streams to enable the passage of fluids to the required destination.

Course Objectives:

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

- familiarize with the fundamentals of pumps, compressors and gas turbines
- understand the principles of pump, compressor, and gas turbine theory of operations
- understand different types of pumps, compressors and gas turbines
- explain the functions and principles of operation of each of the major components of these machines and systems components
- monitor pump, compressor and gas turbine reliability, availability and cost-effectiveness
- know how to measure and control of performance and efficiency of these machines
- understand the principles of pump, compressor, and gas turbine start-up procedures and to introduce standard operating procedures for the package
- know the procedure of how to maintain and inspect the pumps, compressor and gas turbine to improve skills in executing activities in a safe and right manner
- know how to inspect and diagnose the root cause of the problems
- learn troubleshooting techniques for operational problems of pumps, compressors and gas turbines
- define gas turbine engine
- understand the GT thermodynamic cycle and engine theory
- identify gas turbine parts
- know the function of major package components
- demonstrate the support and auxiliary systems
- classify the different types of compressors
- study the different types of combustion chamber and turbines
- learn the recommended operating procedures
- develop skills in troubleshooting
- acquire knowledge of repair, inspection, and diagnosis
- explore systems maintenance procedures
- follow-up key performance variables and means to monitor
- Evaluate turbine performance parameters during start-up and normal operation
- Analyze common turbine problems, such as vibration, temp/pressure operation, and surge

Targeted Audience:

- Engineering Personnel
- Technical Personnel in Charge of Operations and Maintenance
- Maintenance and Operation Engineers

- Supervisors
- Operators

Course Outlines:

Unit 1: Introduction and Basics of Centrifugal Pump

- Pump Introduction

Unit 2: Operations, Trouble Shooting & Maintenance of Pumps

- Pumps Operation Procedures

- Pump Troubleshooting

- Failure or Deviation Symptoms
- Introduction to Compressors

Unit 3: Thermodynamics, Compressor Basics & Operations

- Centrifugal Compressor Configurations and Components
- Centrifugal Compressor Control

Unit 4: Centrifugal Compressor Control, Operations & Troubleshooting

- Centrifugal Compressor Operation

- Centrifugal Compressor Troubleshooting

- Gas Turbine Basics and introduction

- Core Engine Components

Unit 5: Steam Turbines Basics, Components & Operation

- Air inlet system
- Combustion chamber
- Turbine stages and Exhaust
- Engine support systems
- Turbine Ancillary components

- Gas Turbine Operation and follow-up
- Gas Turbine Troubleshooting
- Gas Turbine Inspection and Overhaul

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