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| <p>KLM Technology Group</p> <p>Practical Engineering Guidelines for Processing Plant Solutions</p> | <table border="1"><tr><td data-bbox="548 128 799 247">KLM</td><td data-bbox="799 128 1133 247">Technology Group</td></tr></table> <p>Engineering Solutions Consulting, Guidelines, and Training</p> <p>www.klmtechgroup.com</p> | KLM | Technology Group | <p>Page 1 of 9</p> <p>Rev 1.1</p> |
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Natural Gas Processing, Sweetening, Sour Water Stripping and Sulphur Recovery Training Course

Introduction

The success of every company depends on each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes, and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. Training and development are an investment in future success - give yourself and your employees the keys to success.

It is strategically important that your team understands the fundamentals of process unit operations concepts. This is the difference between being in the best quartile of operational ability and being in the last quartile. There is vast difference in the operational ability of operating companies and most benchmarking studies have confirmed this gap in operational abilities.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts are very beneficial in closing the gap if you are not in the best quartile or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operational principles is the most effective way to obtain the desired results. Training and learning should be an ongoing continuous lifelong goal.

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Course Objective

This course will guide the participants to develop key concepts and techniques for Natural Gas Processing, Sweetening, Sour Water Stripping and Sulfur Recovery Operations. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Many aspects of Natural Gas Processing, Sweetening and Sulphur Recovery operations management can be improved including product recoveries, purities and energy utilization, and safety. This cannot be achieved without first an understanding of basic fundamental principles of design and operation. These principles need to be understood in advance of operating and trouble shooting a process unit operation for the manager or problem solving to be effective.

This seminar focuses on the core building blocks of the Natural Gas Processing process systems, equipment, and economics. This program will emphasize the process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance, and support personnel.

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Syllabus

Introduction

- Overview of the Chemical Processing Industry

Review of Process Incidents

- Safety for the Chemical Processing Industry

Fundamentals of Petroleum Chemistry

- Description of a Hydrocarbon Molecule
- Types of Hydrocarbon Molecules

Process Equipment Troubleshooting

- Troubleshooting concepts and techniques
- Typical Problems
- Interaction of Process and Equipment
- Tower Inspection Case Study

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Introduction to Natural Gas Processing

- Well Head Gas Liquid Physical Separation
 - Slug Catchers / Separators
- Dew Point Units / Dehydrations Units
 - Glycol Units
 - Mole Sieve Units
- Gas Sweetening Units
- Mercury Removal Units
- Gas Processing Units
 - Natural Gas Liquid Plants (NGL)
 - Liquefied Petroleum Gas Plants (LPG)
 - Liquefied Natural Gas Plants (LNG)
 - Condensate Splitters
- Gas Compression Systems

Introduction to Sulphur Removal Processing

- CLAUS Process
- SCOT Process
- Other Process

Introduction to Sour Water Stripper Processing

- Overview of Sour Water Strippers

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Natural Gas Sweetening (Acid Gas Removal)

- Overview of Gas Sweetening Unit Systems
- Safe Commissioning of Gas Sweetening Unit Equipment
- Design of Gas Sweetening Unit Systems
 - Overview of Absorption
 - Solvent Chemistry
 - MEA
 - DEA
 - MDEA
 - Others
 - Process Flow Sheets
 - Sulfinol
 - Flexsorb
 - Carbonate
 - Physical Absorption
 - Key Design Parameters
 - Lean and Rich Approaches
 - Choice of Solvent
 - Regeneration Systems
 - Controlling Solvent Losses
 - Metallurgical Issues – Corrosion
 - Solid Bed Treating
- Economics – Process Optimization and Integration
- Trouble Shooting
 - Solvent Degradation and Amine Losses
 - Foaming
 - Heat Stable Salts
 - Corrosion
- Case Study
 - Improper blinding
- Maintenance Guidelines
 - Review of OSHA Welding Guidelines
- Safety

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Sulphur Recovery Process

- Overview of Sulphur Recovery Unit Systems
- Safe Commissioning of Unit Equipment
- Design of Sulphur Recovery Unit Systems
 - Claus Process
 - Process Overview
 - Operating Parameters
 - Operating Issues
 - Effect of CO₂
 - Liquid Oxidation Process
 - Tail Gas Process
 - SCOT Process
 - CBA
 - Others
 - Key Design Parameters
- Economics – Process Optimization and Integration
- Trouble Shooting
- Case Study
- Maintenance Guidelines
- Safety

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Sour Water Stripper Process

- Overview of Sour Water Stripper Unit Systems
- Safe Commissioning of Unit Equipment
- Design of Sour Water Stripper Unit Systems
 - Types of System
 - Best Tower Internals
 - Key Design Parameters
- Economics – Process Optimization and Integration
- Trouble Shooting
- Case Study
- Maintenance Guidelines
- Safety

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Who Should Attend:

- People who are making day to day decisions regarding operation, design, and economics of processing plants.
 1. 1st Line Operations personnel,
 2. Operation Supervisors,
 3. 1st Line Maintenance personnel,
 4. Maintenance Supervisors,
 5. Senior Plant Supervisors,
 6. Operations Engineers
 7. Process Support Engineers,
 8. Design Engineers,
 9. Cost Engineers
 10. Environmental Engineers
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject matter

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What you can expect to gain:

- A detailed overview of Natural Gas Processing, Sweetening and Sulphur Recovery Unit operations, processes, and design
- Gain an understanding of the equipment of these Natural Gas Processing, Sweetening and Sulphur Recovery Units
- Gain an understanding of the Gas Processing, Sweetening and Sulphur Recovery Unit flow sheets
- Gain an understanding of Gas Processing Chemistry
- Understanding of Amine Gas Processing Unit's design, operating and maintenance techniques
- Familiarization of Sulphur Recovery process operating and design consideration
- Familiarization of Sour Water Stripper process operating and design consideration
-
- Understand common operational problems and their troubleshooting Techniques
- Gain an insight to improve process optimization and strategies