FCCU Troubleshooting & Optimization

Potential PDH: 16

Description:

Optimum FCCU performance requires understanding current unit operations and capabilities, setting clear goals and strategies and then implementing these strategies. In this course, you will:

Learn to use data more effectively. Refinery data acquisition systems can deliver an overwhelming amount of real-time data. The course introduces monitoring systems that distill data into manageable amounts of information and provide targeted reports for each stakeholder. It also covers how to use the data to identify current and future unit problems and potential opportunities for improvement.

Find out about refinery computer control systems—and how to make sure they help your refinery maximize profits. The modern refinery relies on complex computer programs to make many profit-critical decisions. Crude selection, production targets and key unit operating conditions usually determined by the refinery LP. Individual unit operations are often controlled by an Advanced Process Control System while other key questions are evaluated with a rigorous kinetic model. This program shows how to evaluate these systems' performance, and if they are truly driving toward maximum profit and/or achieving other strategic goals.

Learn a methodology for troubleshooting complex systems. Optimum economic performance cannot be achieved unless problem areas are quickly identified and corrected. This troubleshooting methodology is useful to the individual troubleshooter as well as multi-person teams. The program uses real-life examples to illustrate how to use this information to achieve continuous optimum performance in both the short and long term.

Outline:

Process Monitoring

- Overview and Goals
- Types of Monitoring
- Feeds & Yields
- Catalyst Performance
- Material Balance
- Heat Balance
- Constraint Giveaway
- Catalyst Circulation

- Pressure Balance
- Reaction Mix Tests
- Corrosion

Building a Monitoring Program
- Key Process Indicators
- Data Collection
- Reports and Information Sharing

Key Process Variables
- Adjustments to Maximize Utilization

FCCU Troubleshooting
- Methodolgy
- Function of Key Systems
- Typical Problems
- Solutions

Optimization Strategies
- Strategic Goals
- Minimizing Cost vs Maximizing
- Profits
- Unit Optimization
- Refinery Optimization

Daily Optimization
- Goals / Operating Targets
- Maximizing Utilization
- Advanced Process Control
- Monitoring the APC

Longer-Term Optimization
- Unit Degradation
- Catalyst Performance
- Feed and Catalyst Selection
- Optimization Meetings
- Evaluating Strategies
- Evaluating Capital Investments

Using and Maintaining Process Models
- Reactor / Regenerator Yield Models
- Distillation Models
- LP Models
- Heat Exchanger Train Models

Troubleshooting Exercises

Optimization Case Studies

Who Should Attend:

This course is ideal for anyone involved in refinery process engineering, refinery planning, unit operations, process modeling, catalyst sales andtechnical service. Supervisors of these functions will also find this program valuable. Although the focus is on FCC unit monitoring and optimization, many of the principles discussed also apply to other refinery process areas

Subject Matter Expert (SME):

Alan R. English is an independent consultant, has extensive experience in the petroleum refining industry. During his 40 plus year career, he helped dozens of refineries in North America, South America, Europe, Asia and the Middle East optimize their performance. He was employed at KBC Advanced Technologies, Sunoco, Chevron and Gulf Oil. Al led the development and commercialization of the use of tin for vanadium passivation and bismuth for nickel passivation. He has authored or co-authored 13 publications and twice served on the NPRA (now AFPM) Q & A Panel. He holds three US patents. Al has a BS degree in Chemical Engineering from Lehigh University and an Executive Masters degree in Technology Management from Stevens Institute of Technology. He is a licensed Professional Engineer in Pennsylvania.