Advanced Blend
Control Strategy

C CONTROL MANUFACTURING

OEA2P

Topic ID	**OEA2T**
Title	**Advanced Blend Control Strategy**
Category	**C-Control Manufacturing**
eLearning Level	**Basic**

Introduction

Blending technology has advanced in bits and pieces over the last 50+ years to its current state. These changes did not happen overnight or in one step. They happened as the business regulations changed, advancement in cars manufacturing required better fuels, and competition increased from other refineries in the world.

The blend control has migrated from mainframe computers to workstations and now even to higher-end servers and PCs on hardware. In addition, the software has moved from machine assembly languages to user-friendly languages like Fortran, Visual Basic, C++, etc., and the operating system from IBM's VMS mainframe system to Microsoft Windows.

This topic discusses these advances in a phase-wise manner using virtual case studies.

Areas of Advancement in Blending Technology

This topic discusses the following aspects of blending technology.

- Measurement of flows and tank levels by using Coriolis meters and radar-based tank level measurements
- Measurement of blend tank qualities by using a combination of discrete and integrated multiplexed online spectrum-based analyzers. Current developments include model-based prediction of blend tanks qualities.
- Use of non-linear blend models to accurately predict blend qualities to minimize quality giveaways and eliminate spec violations
- Use of non-linear blend recipe optimizers to take advantage of sophisticated non-linear blend models

- Three-tier blend control and optimization using offline optimization, online control, and DCS-based regulatory blend control
- Reconciliation and feedback of model parameters using multiple and non-linear regression methodologies
- Evaluation of historical blending system performance using online data storage and information systems
- Better planning and scheduling systems to plan blends for long, medium, short, and next-day executions
- Methodology to benchmark the current state of blending system in a refinery and compare against other refineries in the same or different corporations
- Identification and monitoring blend project KPI to justify the investment and realize the benefits as expected in the project

Summary

The progress of blending technology over many decades and its complexity requires that the blend engineers receive adequate support from management by enrolling in continuing education to learn methods to maximize the benefits of the blending control system.

Options for eLearning This Topic

Mode of eLearning	Available?
Free Course	No
Refresher Course	No
Pick N Choose (Custom Curriculum)	Yes
Advanced Level Course	Yes
Structured MCOR Curriculum	Yes