

Advanced Process Control for an NGL Fractionation Train Improve Yields of the More Valuable Product Streams and Reduces Fuel Gas Consumption

Feed to this NGL Fractionation Plant was gathered from over 100 gas wells; therefore, the plant feed varied wildly in rate and composition. With little feed storage capacity, the plant had to handle these wide variations while maintaining product qualities on spec, a task virtually impossible at times for the operators with only the basic controls.

Main Objective

The customer challenged MAVERICK to solve this critical operating problem by developing a set of APCs that deal directly with the feed rate and composition variability, maintaining product qualities on spec and thereby maximizing yields.

Customer Results

Operators are very satisfied with the results. The operators' attitude toward the effort went from, "You're wasting your time—it can't be done." to "I'm impressed—this is a significant improvement."

During the first full month of operation, the control uptime was 99+% and the standard deviation of the product qualities was reduced by 60%. Products remained on spec throughout the test period.

Application Description

- ◆ This APC package consists of a combination of:
 - ◆ DCS-resident advanced regulatory controls (intelligent feedback, dynamic feedforward compensation, and decoupling) for maintaining target P-corrected tray temperatures;
 - ◆ Model-predictive controllers for maintaining target product compositions, using on-line GC analyzers, while minimizing column pressures.
- ◆ Feedforward action is included at the DCS level for total charge rate changes.
- ◆ A feed composition analyzer provides feedforward input to the MPC controllers.



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