

Hot Cutover of New Instrument Loops Saves Time, Leads to Broader Application of AMS Suite

RESULTS

- 50% reduction in commissioning time through hot cutover technique
- Lower commissioning costs
- Continued revenue generation by maintaining production
- Established infrastructure for refinery-wide online monitoring and asset management



APPLICATION

Some 120 Fisher® digital valve controllers and 200 HART® field devices were commissioned and their control loops verified as part of a distributed control upgrade of a hydrofluoric acid (HFA) unit at a 300,000 barrel per day refinery.

CUSTOMER

Major independent petroleum refiner supplies fuel and petroleum products from refineries and ethanol plants in the U.S., Canada, United Kingdom, and the Caribbean.

CHALLENGE

Management wanted to minimize disruptions to production during installation of an automated system to replace outdated pneumatic controls in the refinery's HFA unit. New digital valve controllers (DVCs) and HART digital instruments had to be mounted, configured, and validated prior to switching over to automatic control.

This historically time-consuming procedure can take several weeks, and even then, startups can be risky. Officials at the refinery demanded a safe, efficient startup without unexpected downtime in order to maximize gasoline production.

SOLUTION

Emerson's AMS Suite predictive maintenance software was installed as part of the HFA unit upgrade project. The system's server was tied in to the control network through Elcon multiplexers, providing the means to communicate with smart field devices serving the new DCS.

“Emerson’s proven ‘one-loop-at-a-time’ concept makes online ‘hot’ cutovers more desirable than shutting down an entire unit for commissioning.”

Staff Instrument Engineer

With this new interface, one person operating from the control room or other central location can make contact with each smart transmitter and DVC on the control network to confirm that wiring is correct and functioning properly. The integrity of full control loops having several input/output devices can be verified in much the same way. This streamlined procedure reduced commissioning time by more than 50 percent.

Since time was a critical factor, a “hot cutover” was executed, allowing the unit to continue to operate while more than 300 critical devices were commissioned. Technicians from Emerson and Scallon Controls, Emerson’s Local Business Partner, were able to set the calibration and simulate process variables at each device without anyone having to go into the field, locate a device, and connect a handheld communicator or laptop. This procedure was coordinated with the refinery’s Operations Department.

Following commissioning of the new DVCs, testing of each valve was required while the loop was in bypass mode. The hot cutover team was able to complete each commissioning and valve testing within 45 minutes, going loop-by-loop through the entire unit.

These capabilities, along with the ability to trend and troubleshoot using digital diagnostics, provided the opportunity to align with corporate initiatives for implementing “highly instrumented systems” as part of their best practices.

By using AMS Suite, the refinery discovered additional benefits:

- Prevention of production loss/interruption through high temperature diagnostics on a DLC level controller, as well as reduced labor costs for manual monitoring of the level column.
- Reduced testing and coordination time during Safety Instrumented System (SIS) acceptance testing at the site.
- Reduced amount of equipment needed to solve field issues by performing “triage” and troubleshooting before going to the field.
- Reduced technicians’ exposure to hazardous areas.



“Fisher DVCs and AMS Suite software give our technicians a simpler interface and setup.”

Staff Instrument Engineer

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