

Brazilian Petrochemical Plant Switches to Emerson's Digital Automation Technology On-the-Fly

RESULTS

- Reduced product variability
- 10% maintenance savings
- No lost process time
- Reduced engineering cost
- Reduced operator training cost
- Enriched process information



APPLICATION

Naphtha fractionating and super heaters make petrochemical raw goods including ethylene and propylene, as well as aromatics such as benzene, xylenes, orthoxylenes butadiene and GLP cooking gas.

CUSTOMER

Petroquímica União, or PQU, near São Paulo, Brazil

CHALLENGE

To maintain high operational reliability and keep the company competitive, the petrochemical company wanted to upgrade a large plant area involving 20 naphtha cracking furnaces, the effluent area, and the naphtha fractionating area and super heaters, totaling 3,000 I/O. The first challenge was to make the changeover while still meeting existing production commitments. Incrementally changing over 20 furnaces required a schedule that lasted almost six months.

SOLUTION

The company elected to replace its 20-year-old Emerson PROVOX™ system with Emerson's DeltaV™ digital automation system, part of the PlantWeb™ architecture.

Smooth "Hot" Cutovers

PQU did 90% of the configuration, with Emerson performing the remainder off-site. And the cutover was done "hot," system-by-system, with no production loss.

"We can see and quantify the results of our automation investment. The technology brings fantastic results. It brings us process security, operational reliability, cost reduction, variability reduction, it brings a complete knowledge of your plant. In other words, PlantWeb really improves our competitiveness."

Adalberto Giovanelli Filho

Production Manager, Petroquímica União



For more information:
www.EmersonProcess.com/DeltaV



The DeltaV system's integration with intelligent positioners and instrumentation in the field eased the transient stages of commissioning or decommissioning furnaces, because the intelligent positioners allowed operators to automate the control loops much earlier than in systems without them.

Engineering and Operator Training Savings

Tuning loops after the transition was also an easy task, using the system's built-in loop-tuning software.

Operators and engineers learned the DeltaV system in a 5-day training session from Emerson. After that, they were able to configure the entire system, within the familiar and friendly windows-like interface.

Notes instrumentation maintenance engineer Livia Ortiz: "The operators always ask for modifications. We couldn't make these modifications very easily before. Now, with the DeltaV system, we can make the changes in a matter of half an hour and we don't have to shut down the system to do it."

10% Maintenance Savings

Engineer Vagner Ferreira de Almeida says, "With the implementation of the DeltaV system and smart field devices, we no longer need to dismount the instruments and take them to the shop. As a result we've realized maintenance cost savings of around 10%."

Notes production manager Adalberto Giovanelli Filho, "The minute you start using intelligent digital instrumentation with the AMS software, you can go from preventive maintenance to predictive maintenance, and that brings savings." Adds Ortiz, "The operator already has access to the diagnostics and when he calls a maintenance technician; he can guide him with more precision, so the technician doesn't waste time doing his own analysis; he can go straight to the problem."

Enriched Process Information

The DeltaV system's on-line historian allowed operators to easily access to data and the first-out alarm. Access to trends is much friendlier than on the earlier system. Operators can work with scales, colors, range, and time selections—much like working in an Excel spreadsheet. Remote access lets plant managers and engineering staff troubleshoot the plant from anywhere, any time.

Future Implementation

Petroquímica União has already planned its path forward with the digital automation system. Next year, the company expects to replace some of its DCS systems and PROVUE consoles for a totally integrated DeltaV system in the olefin facility. Eventually, the company will integrate all production units with the business information system. Says Ferreira de Almeida: "The implementation of the DeltaV system gave us advantages in all areas, upgraded our operation regarding

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information and levels of access. The information is better organized for quicker decision-making and identification of operational paths that can be more quickly achieved.”

Filho concludes, “We can see and quantify the results of our automation investment. The technology brings fantastic results. It brings us process security, operational reliability, cost reduction, variability reduction. It brings a complete knowledge of your plant. In other words, PlantWeb really improves our competitiveness.”

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