AMS Device Manager helps Petrobras Improve Plant Profitability by More Than $1.5 Million Annually

RESULTS

- Saved more than $1 million (USD) by switching to digital control
- Increased product value by more than $1.5 million (USD) per year through predictive maintenance
- Eliminated unnecessary control valve maintenance
- Reduced instrument calibration time by 60%

"Management could not have imagined the importance of switching to digital automation and using diagnostics to increase reliability and productivity in this plant."

Roberto Anibal Gorbaran
Instrumentation Supervisor

APPLICATION

Approximately 850 intelligent FOUNDATION™ Fieldbus and HART® field devices have been generating valuable diagnostics in a polystyrene manufacturing plant in Argentina since digital re-instrumentation was implemented. Digital control of production units was added two years later.

CUSTOMER

Petrobras Energia, an integrated energy company headquartered in Buenos Aires, operates a manufacturing facility at Zarate, about 50 miles north of Buenos Aires. The plant produces polystyrene, a lightweight plastic used to make parts for refrigerators, air conditioners, and vacuum cleaners.

CHALLENGE

Analog instrumentation serving a legacy distributed control system limited productivity at Petrobras Zarate, which began operation in 1986. Recognition that up-to-date automated controls were needed led to a plant-wide digital instrumentation program in 2002. Reactors in the high-impact and crystal polystyrene units were upgraded to digital control in 2004, resulting in improved production control and reduced process variability. Productivity rose by three to five percent, and maintenance savings of more than 10 percent were achieved. However, the plant still relied largely on preventive maintenance with personnel reacting to emergencies just to keep the plant operating. A better maintenance strategy was obviously needed to take advantage of the field-generated predictive diagnostics.

SOLUTION

A comprehensive asset management program based on Emerson's AMS Device Manager predictive maintenance software has enabled the plant to achieve still greater profitability. Production of high impact polystyrene has increased from 8000 to 8500 kg per hour — almost seven percent — since the program was implemented. This amounts to added income of $32,000 per week or more than $1.5 million annually with no stoppages.

Petrobras Zarate personnel use AMS Device Manager to analyze diagnostics from field instruments and digital valve controllers via the DeltaV™ digital automation system. Operators and production supervisors as well as maintenance personnel are able to use these rich diagnostics to examine the condition of instruments in a way never before. Device issues can be evaluated with this information, and personnel can determine the best time to perform maintenance. Decision-making based on the real-time status of each device yields a value much greater than either preventive or reactive maintenance practices.

The use of predictive intelligence is also beneficial in reducing the time required for device commissioning and startup, speeding up routine instrument calibration, improving troubleshooting, and eliminating unnecessary maintenance. For example, planned overhauls of many control valves with digital valve controllers (DVCs) have been delayed because the diagnostics indicated the valves were in good operating condition and not in need of extensive repairs.

Through predictive diagnostics, maintenance personnel were able to extend scheduled maintenance on many critical control valves to two-and-one-half years, saving substantial costs and maximizing production.

The plant is now installing wireless devices using the IEC 62591 (*Wireless*HART®) standard in order to gather predictive diagnostics to monitor conditions in remote and hard-to-reach locations. These diagnostics will also be accessible through AMS Device Manager and the DeltaV system.

"Petrobras manufacturing sites across Argentina now have a forum to share experiences and advantages of operating from a smart digital platform."

Roberto Anibal Gorbaran
Instrumentation Supervisor

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