

Petrobras Petrochemical Plant Migrates from PROVOX to Experion PKS



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Fabio Fazio, Senior Maintenance Leader, Petrobras

Benefits

At its petrochemical plant in Argentina, Petrobras realized a number of significant benefits as a direct result of its migration to Honeywell’s Experion® Process Knowledge System (PKS):

- Accomplished migration with zero hours of lost production and zero abnormal situations
- Increased process availability due to robustness and redundancy
- Transitioned operators quickly and easily using simulation methodologies
- Increased productivity by standardizing operations and systems management
- Integrated information environment to implement added value applications
- Established easy remote maintenance
- Enjoyed user-friendly online configurations
- Considered future expansion plans based on system scalability

Background

For more than four decades, Petrobras has been an international leader in the distribution of oil products and is one of the 15 largest oil companies in the world today. The company leads the sector in the development one of the most advanced deep water and ultra-deep water technologies for oil production. Production exceeds 2 million barrels of oil and natural gas per day, and the company has 93 production platforms, 10 refineries, 10,000 miles (16 kilometers) of pipeline and 7,000 service stations.

Petrobras Argentina operates in activities such as gas and oil exploration and production, refining, petrochemicals, hydrocarbons generation, commercialization and transport, and electricity transmission and distribution. The petrochemical operations in Argentina manufacture several products such as styrene, polystyrene, rubber, fertilizers, and polypropylene, and puts them in local and international markets. Petrobras’ San Lorenzo complex in Argentina houses one refinery and one petrochemical plant. The petrochemical facility is distributed over five separate sites that include rubber, steam and energy services, reforming, styrene-ethylene-ethyl benzene and aromatics reforming.

Challenge

At its San Lorenzo complex, Petrobras was looking to upgrade its legacy technology used at the petrochemical plant. Built in 1965, the plant used technology based on pneumatic instrumentation and single loop controllers. Over time, different projects were executed using a variety of technologies that resulted in a complex environment of control automation hardware and software. As a result, some instrumentation around the plant was pneumatic, while some loops were controlled by single loop controllers. The styrene and ethyl benzene processes were controlled by Fisher PROVOX and SR 90 control systems, and factory link SCADAs. Allen-Bradley PLCs were implemented in power, rubber and other areas.

Several drivers were identified to migrate the automation systems at the petrochemical facility, including:

- Low process availability
- Difficult and costly maintenance due to the obsolescence of PROVOX , SR 90 and pneumatic components
- Diversity of legacy equipment reduced the ability of acquiring or supervising global business data
- Low data confidence due to problems with some software interface compatibilities

“After realizing that we needed to migrate, we looked at various factors critical to our decision making as to which product to choose,” said Fabio Fazio, Senior Maintenance Leader, Petrobras. “Those factors included control reliability, data configurability, network architecture support, plant standardization and safety instrument system integration.”

Based on the above decision factors, Petrobras reviewed several products including Honeywell’s Experion PKS, Emerson’s DeltaV and Rockwell Automation’s ProcessLogix.

Solution

After an exhaustive review of automation solutions, Petrobras chose Honeywell’s Experion PKS. “The other products we evaluated didn’t even compare to Experion PKS in terms of communications, redundancy, architecture and safety system integration features,” said Fazio.

A hot cutover was carefully accomplished over a period of time by migrating three pneumatic loops per day and 6-7 electronic loops per day.

More Information

For more information on any of Honeywell’s Products, Services, or Solutions, visit our website www.honeywell.com/ps, or contact your Honeywell account manager.

Automation & Control Solutions

Process Solutions

Honeywell

2500 W. Union Hills Dr.

Phoenix, AZ 85027

Tel: +1-602-313-6665 or 877-466-3993

www.honeywell.com/ps

Experion features implemented at each of the five sites include redundant servers and controllers, redundant ControlNet, Fault Tolerant Ethernet, Profibus, remote I/O and Modbus.

Petrobras trained operators and had them take ownership in the project early on to help propose system improvements, familiarize themselves with final displays, and provide configurations for testing and review.

“With Honeywell’s help, we had a successful migration done in hot cutover with zero hours of lost production and zero abnormal situations,” concluded Fazio. “Due to the success of our Experion migration, Petrobras is now investigating other Honeywell solutions.”