Case Study: Juan Bru SA Cold Storage Plant, Mendoza, Argentina

Introduction

Juan Bru SA is a cold storage plant and a producer, packer and exporter of stone fruits. The industrial plant is located in the Uco Valley, which is the center of the province of Mendoza in the Republic of Argentina.

The Juan Bru SA plant is capable of supplying various markets with approximately 8,000 tons of stone fruits. It currently exports 75% of its production and caters 25% of its production to the domestic market. At full production, the plant is capable of processing 120,000 kg/day or about 6,000 packages per day.

Pulse provides a complete automated control solution to this sensitive area of business, managing electricity, thermo-mechanics and automation.

Automated System Solution

An automated system is installed in the cold storage plant, which has an operating panel with Pulse software to view all information received from the PLC and for transmitting commands and parameters entered by the operator.

The Juan Bru SA Cold Storage Plant

The Juan Bru SA production facility has four campus refrigerators for conventional cooling, two rapid cooling tunnels and three controlled atmospheric enclosures. The facility has a storage capacity of 220,000 packages, which is equivalent to 4,400 tons of packaged products.

The engine room has five ammonia compressors, a condensing system and two liquid NH3 pumping plants.

The system ensures optimum control of the installation progress, achieving remarkably economical energy consumption and a high degree of reliability.

The system is completely flexible and is designed to perform system monitoring, regulatory process analysis, control and modification of specific machine parameters.

The system is configured with password access. This is to enable the system to identify each user and allow entry only to permitted sectors, restricting access to users without proper permission to access the system.

The system includes a historical report feature that records all failures that occur, displaying the date, time and the type of event.

The program does not allow mistakes with its data entry because it performs validation of all data requested, rejecting and requesting external data.

Some of the functions that can be performed from the console are:

- Starting and stopping a refrigeration system component individually
- Fixing or adjusting parameters (e.g., chamber temperature, pressure control, boot priority, etc.)
- Indicating enabled services and their current parameters (e.g., temperature, pressure, time, etc.)

The system also includes all engineering details regarding electrical works related to the automatic handling of the installation and re-functioning of the facility, the required modifications and the procedures to achieve them.

Benefits

The Pulse SCADA control system implemented in the enclosures generates seven different operation modes. Each mode generates an automatic control that also reads and records temperature.

In the engine room, on the compressor and capacitor lines, modulation and bias of different variables related with the machines' suction and discharge pressure were achieved. This permits the optimization and effectiveness of the system to change to cold temperature on demand. Pumping plants are launched when necessary and are self-regulated depending on the level.

The whole system provides information: trends, alarms and reports for operators and supervisors. It does not generate misleading parameters of control variables.

With the acquisition of the system, Juan Bru SA has decreased energy costs, made effective resource use, unified criteria, planned effective maintenance interventions, and achieved great installation reliability.

Customer Feedbacks

We collected the following comments on behalf of the end user:

"With our automated plant, our work is easier allowing us to achieve a higher degree of accuracy. We optimized the operating times and operation maneuvers, permitting us to dedicate more and efficient time to do our specific tasks."

- Victor Campos, Chief Engine Room -

"The system provided has fulfilled our requirements and quality specifications".

- David Bustos, General Manager -