CUSTOMER CASE STUDY

Woodlands Dairy improves production monitoring and control with a little help from AVEVA

Woodlands Dairy (Pty) Ltd - www.woodlandsdairy.co.za
Industry - Food & Beverage

Goals

- To create a redundant, reliable, and flexible system using a single platform that will integrate all the disparate plants on site

Challenges

- The project must be completed without any interruptions to production
- Preserve previous investments in assets and legacy systems

Solution

- AVEVA™ System Platform
- AVEVA™ InTouch HMI
- AVEVA™ Historian

Results

- Achieved compliance with ISO22000
- Reduced engineering cost while improving quality control
- Improved troubleshooting capabilities
- Accurate reporting and standards in place for future use

HUMANSDORP, South Africa – In these complex times, the supply of primary foodstuffs such as dairy products is subject to increasingly close scrutiny. To stay in business profitably in the dairy industry means the consistent provision of quality products and unswerving compliance with ISO standards. Humansdorp's Woodlands Dairy is well up to the challenge.

Woodlands Dairy bought a second-hand powder plant from Denmark which had a control system that was outdated and not suitable for modifications required to adapt the process to Woodlands Dairy's specifications. This started a chain of events that would not only require a production monitoring and control system for the powder plant but that would also prompt the company to consider how this expansion could be integrated with the rest of the site.

"This made us take a step back and consider what we really needed for the company as a whole," says Jan Barnard, Process Engineer, Woodlands Dairy. "Up until now, all we had on site were OEM installations and an old InTouch system but no PLC (Programmable Logic Controller) or SCADA standards."

"The AVEVA technology helped increase our level of knowledge and control to the degree that we can now think about improving our processes rather than just keeping up with them."

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Jan Barnard
Process Engineer, Woodlands Dairy

Project Requirements

Top of the agenda was a single platform that could integrate all the disparate plants on site while preserving past investments in expensive assets and legacy systems while making provision for future expansion.

"We needed a centralized environment for process data logging which would allow us to analyze data in real-time and produce reports," says Barnard. "We also needed flexible security facilities that would allow operator access only to designated areas of the plant. Finally, we needed system redundancy to provide for uninterrupted operation as well as the ability to develop and deploy solutions from a central point for ease of maintenance."

The stage was set for the best solution candidate to handle these diverse requirements, AVEVA System Platform consisting of the application server, AVEVA InTouch HMI, and AVEVA Historian trending and reporting tool. "We chose AVEVA for a number of reasons," says Barnard, "not the least of which was my previous experience with their products."

Other reasons included:

- Universal data connectivity – this would cope with Woodlands Dairy's variety of PLCs
- Object orientated technology – not only was this software more maintainable than its alternative but it also promoted standardization
- Distributed system
- Easy to create reports and retrieve historical data
- Full redundancy
- Scalability
- The level of support available in South Africa

"We used AVEVA System Platform standard templates throughout which would help later with maintenance and reduced engineering costs. We also implemented PLC standards with regard to the ControLogix and SLC500 PLCs."

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Jan Barnard
Process Engineer, Woodlands Dairy

Implementation

The entire implementation took about six months, half of which was spent on the new powder plant which was commissioned first. While the powder plant was a greenfield project, upgrading and expansion work for the existing processing plant were done during weekly shutdowns. Standards developed for the powder plant were implemented for the processing plant as part of the upgrading and expansion projects.

Other process areas were also upgraded and these included a new Clean in Place (CIP) Station, a new cream pasteurizer/butter plant, an upgrade to the milk pasteurizer, new pasteurized milk silo and milk lines, new pasteurized cream silo and a new milk reception area with its own CIP station.

Standards design

“Starting from scratch, we used the AVEVA System Platform checklist as a guideline for our standards design,” says Barnard. “This helped us progress to our naming convention and plant model design as well as SCADA standards such as navigation, graphics and control modules. We used AVEVA System Platform standard templates throughout which would help later with maintenance and reduced engineering costs. We also implemented PLC standards with regard to the ControLogix and SLC500 PLCs.”

So what’s next? According to Barnard, they’re looking at making information such as KPIs more visible and widespread using AVEVA’s Information Server while the Performance Module will prove useful on the sterilizers and pasteurizers as well as the standalone TetraPak filler line.

Benefits

- **Reduced engineering cost** – This is a direct result of rolling out the standards that were defined at the start of the project
- **Compliance with ISO22000** – An important achievement with regard to local and international recognition as applicable to food safety (since food safety hazards can occur at any stage in the food chain it is essential that adequate control be in place)
- **Improved quality control** – The silo milk release system is interlocked with the laboratory InTouch system and CIP reports which means that only product that meets the company’s specifications and ISO requirements is released
- **Operator confidence** – Now that they have visibility into the entire plant, operators are increasingly confident about the status of processes and their effect on them
- **Improved troubleshooting capabilities** – Accurate historical data results in equally accurate cause-and-effect scenarios for diagnostic purposes
- **Accurate reporting** – This includes real-time reports on production performance and milk loss
- **Standards in place for future use** – System integrators who may have to work on the system in future have documented reference regarding the company’s standards and requirements. This improves understanding and helps make sure everyone is on the same page.