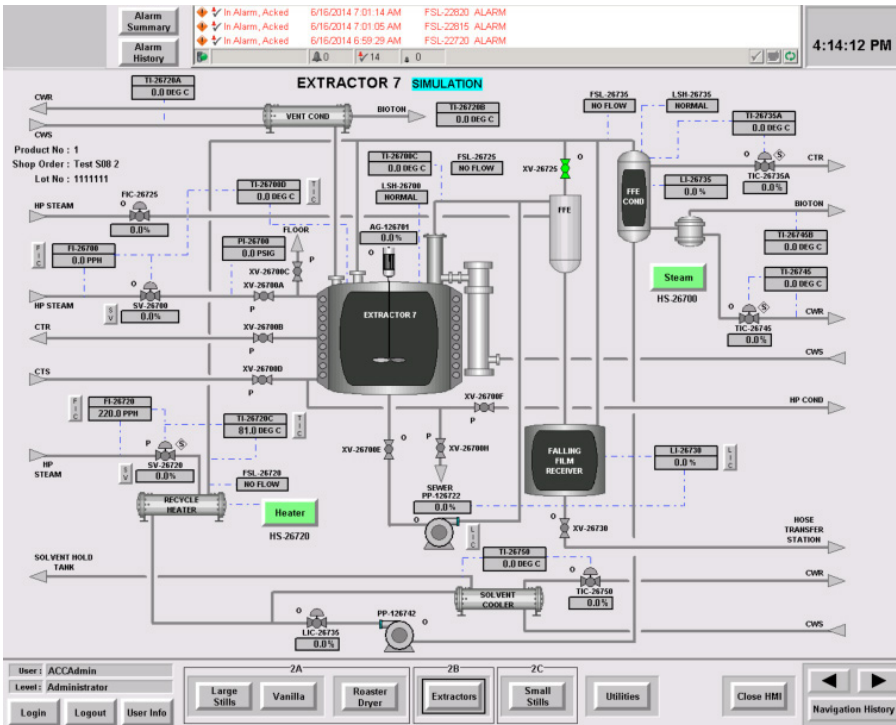




Automated Control Concepts, Inc.
Smart solutions.

Upgrading a distributed control system (DCS) with no loss of production time: ACC migrates flavor manufacturer's entire control system and network seamlessly to smart solution



- Replaced an outdated and failing DCS for world-class flavor manufacturer by creating a way for the legacy and new system to co-exist during the entire migration process

- Repurposed the company's field devices and wiring to marry the best of what was already working with new technology to minimize disruption.

- Eliminated production downtime with inventive staggered scheduling during several weekends

- Heightened manufacturing intelligence with smart software solutions

- Established redundancies that help ensure system integrity

- Improved staff experience: Because of this non-traditional migration approach, plant operators were able to train on their own system at their own site

THE PROBLEM

One of the world's largest manufacturers of natural flavorings was experiencing failures in its outdated DCS. The company knew an upgrade was critical and overdue, but they had many questions and concerns. Was it in the best interests of the business for the new system to utilize the legacy field wiring and devices? And, even more importantly, could an upgrade be accomplished without a disruption in production?

ACC'S SMART SOLUTION

ACC designed, implemented, and tested a new PLC (ControlLogix) based control system and developed a phased plan for installing the system to minimize any risk to production. New IO networks were installed and tested first. ACC moved the system Factory Acceptance Test (FAT) to the site, so that the operations team could train on the actual system prior to startup. Then, the installation of the new system was conducted over a series of five short weekend cutovers, in order to eliminate production downtime and meet the company's objectives. By devising a way for the old and new systems to co-exist between cutovers – breaking the entire system into segmented modules – any potential impact to production was minimized and the system came to life in real time.

CASE STUDY: FLAVORINGS MANUFACTURER

Let's take a closer look at the resulting benefits.

A MIGRATION PROCESS LIKE NO OTHER

All customers have some unique circumstances, and it takes flexible thinking to provide solutions that match challenges that fall outside the norm. Because we built a shadow system behind the existing DCS, staff and operators were able to train in real time right at their own location before the final migration was completed. ACC also broke down the system into modules, so they could be cut over by process area, one weekend at a time. Many times, a production batch, initiated prior to the cutover using the legacy DCS, was completed following the cutover using the new Rockwell-based system! With upfront planning and training, it was possible to cutover from 600 to 800 IO points to the new system during each weekend.



PERFECT TOGETHER: CURRENT TECHNOLOGY AND LEGACY INSTRUMENTS

The new system boasts five controllers, HMI software, historian software and a web-based manufacturing business intelligence solution. The application's server environment leverages a virtualized environment using VMware. In addition, the I/O panels were reused by skillfully combining existing enclosures and newly fabricated subpanels with Flex I/O modules. The plant's new displays include three thin clients repurposed from existing workstations, an ACP ThinManager terminal server, another thin client for flavor processing, and an engineering workstation.

The servers were virtualized and linked to the controllers via a redundant, multi-mode fiber optic network. A device-level ring network is utilized for communication to remote IO panels, motor control centers, and solenoid valves, providing inherent redundancy. A new web-based reporting system was added to provide enhanced visibility and analysis. Many the new software features and the user interface updates optimized ease of operation.



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