Quest Meets International Food Producer's Start-Up Challenge with DeltaV™ Digital Automation System

RESULTS

- Reduced start-up time
- 33% reduced control room space
- 10% reduced installed materials cost
- Reduced operating cost
- 43% reduced process control equipment and space
- Reduced maintenance cost
- Reduced regulatory compliance effort
- Reduced process/product variability

"The system was installed in approximately three days, whereas a conventional system may have taken us three to four weeks."

Steven Mayeux
Vice President, Operations,
Quest Separation Technologies, Houston, Texas

APPLICATION

Food additive manufacture

CUSTOMER

Quest Separation Technologies

CHALLENGE

When an international food manufacturer was preparing for a worldwide launch of a cholesterol-reducing food additive that would require an immediate increase in the supply of an essential ingredient, the manufacturer approached Quest Separation Technologies, a custom manufacturing plant near Houston, TX, with a unique opportunity: build a new plant dedicated to producing this vital ingredient on a fast-track and the business is yours.

The typical timeline for design, construction, and startup of a new, stand-alone facility of this scale is 9 to 12 months. Quest's customer needed the plant producing the ingredient in less than five months.

SOLUTION

Quest turned to Emerson Process Management's PlantWeb™ digital plant architecture, based on the FOUNDATION fieldbus communications protocol, intelligent field devices, and the DeltaV™ digital automation system to meet this project's daunting challenge.

Why PlantWeb?

Quest chose the PlantWeb architecture because of its cost effectiveness, and the reduced manpower and time to install the DeltaV system

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with its space-efficient design. Quest's customer, now the largest manufacturer in the world for this food product, wanted to position itself for efficient future growth.

Reduced Capital and Engineering
The PlantWeb system saved money and time, resulting in additional revenue for the company, coming on line about three weeks faster than a traditional DCS system installation.

Perhaps the most visible advantage of the fieldbus technology was in the commissioning. Says Quest engineering manager Keith Pace, "You were able to just plug the transmitter in and go into the DeltaV system and it was there, and all you had to do was pick it up, drag it down into the I/O, and you were done."

Steven Mayeux, Quest's operations vice president, says, "The system was installed in approximately three days, whereas a conventional system may have taken us three to four weeks."

Pace estimates the savings came out to about 300 man hours in installation cost, about 33% on actual I/O, with an approximate 33% reduction in control room space. Pace adds, the company saved an estimated two weeks' time in the startup.

Reduced Operations and Maintenance
The Asset Management Solution (AMS) inside the DeltaV system provides on-line diagnostics for proactive maintenance. The DeltaV graphic interface allows operators to find problem plant areas or devices on the screen, then address the problem in the plant, confident that they're addressing accurately portrayed problems with appropriate solutions. Says Pace, the system, "lets you know if a valve is wearing out or if you've got some problems with a valve, you can do all that diagnostics in alarming, you can bring back more variables than you could in the past."

Reduced Regulatory Compliance Effort
Quest's project manager Bob Griffith points out, "We've got some flammable chemicals in the area and you want to make sure you're protecting your people and the environment around you. The numbers on this screen have got to be right—and they are right, and we're quite pleased with that." Pace adds, "You can actually document when the transmitter was installed, when you did some calibration on it, and you can actually print that documentation trail."

Reduced Variability
With the DeltaV system and fieldbus technology, Quest was able to see all the multiple variables, including temperature and pressure measurements that can't be seen in a traditional I/O. For this specialized food additive, quality is extremely important, from the standpoint of

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Bill Sonnier
President & CEO, Quest Separation Technologies, Houston, Texas

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both consistency, and quality. Says Quest's president and CEO Bill Sonnier, "We have to operate that facility in very narrow control ranges. And with PlantWeb, we can easily and efficiently do that."

Scalability
The DeltaV system's scalability was a major factor in its selection for the project. Quest installed a small, temporary control room, with plans to double or even triple the plant. The DeltaV system is able to grow with plant needs, from a single I/O, to hundreds or thousands—adding compact I/O cards within a tiny cabinet or wall-mounted rails.

Summary
Fieldbus technology, the DeltaV system, and PlantWeb architecture saved Quest more than 300 man-hours in installation time, reducing a 15-day requirement to 4 days. The breakthrough automation solution also saved Quest 10% in installed material costs, and it reduced both space and process control equipment by up to 43%. As a team, Quest and Emerson met the customer's deadline in record time, giving them a true competitive advantage

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