

Solvay Increases Production, Batch Size, and Achieves On-Time, Under-Budget Project Delivery

RESULTS

- Increased production for one reactor, worth more than \$450,000 per year (University Park, Illinois)
- 10 percent increase in batch size for upstream reactors (Vernon, Texas)
- Multiple projects completed on time and under budget



APPLICATION

Control system upgrade projects for facilities that manufacture chemical products and additives.

CUSTOMER

Novecare, a business unit of Solvay, manufactures numerous essential chemical products including many common additives for household items.

CHALLENGE

Several critical upgrade projects had not met Novecare's standards for project success. Because Novecare depends on its upgrades to bring new value to its plants and to enable flexible manufacturing at its facilities, the capital projects team needed a solution that would drive a much higher success rate for all projects in the next 5 to 7 years.

SOLUTION

Many of Novecare's individual plants manufacture over 100 different products, each made to customers' exacting specifications. The changes that come from continually meeting changing customer needs and goals frequently lead to fast changes on the plant floor. To ensure that these changes can be performed smoothly and safely, the operations team relies heavily on its automation systems during their more than 20-year lifecycles.

Because its automation systems are essential, Novecare tries to ensure that capital projects are not just successfully completed, but also deliver more successful operations. When the project team discovered that some recent projects hadn't been accomplishing this goal, they looked to a different strategy to drive more success from their capital expenditures.

“In partnering with Emerson’s Midwest Engineering Solution Center, we took an important step on the journey of project risk mitigation: developing a unified plan for project execution to drive better decision making.”

Ryan Scofield
Novecare North America
Process Automation Manager
Solvay

The solution was a program approach to project execution that would focus on a singular vision for all Novacare's future capital projects. At the heart of the approach was a close relationship between Novacare, Emerson, and Emerson's Midwest Engineering Solution Center (St. Louis, Missouri).

Novacare leveraged the Midwest Engineering Solution Center's expertise to design projects that would deliver standardization across the business unit, but still address the unique needs of each plant. The project team moved away from its previous focus on lowest installed total cost, instead using knowledge gained from in-depth preparation and experience taken from previous projects to focus on lowering total cost of ownership for each project.

With Emerson as its single expert resource for project design and execution, Novacare was able to utilize global engineering to standardize expertise for each project completed across the business unit. Emerson subject-matter experts quickly became intimately familiar with Novacare systems and strategies and were able to help Novacare carry lessons learned from project to project. By standardizing engineering practices and leveraging global engineering resources, all coordinated by Emerson's Midwest Engineering Solution Center, the project team gained critical on-call resources and increased access to expert knowledge that helped decrease the costs and increase the efficiency of Novacare's capital projects.

Standardization of projects also led to increased success. Emerson built standardized configuration libraries for Novacare that could be reused on multiple projects across the business unit, substantially cutting down on configuration time. In addition, cabinet configurations were standardized at each plant to ensure consistency and efficiency.

Choosing to standardize control systems across projects led to significant benefits. At the Vernon, Texas facility, recipe grouping features in the DeltaV™ distributed control system allowed Novacare to cut nearly 300 individual recipes down to just over 12 with the same product mix. The team not only installed control valves, but also put in a well-designed equipment module that allowed for the control of reactor depressurization. This improvement helped contribute to a 10 percent increase in batch size at the facility.

Novacare also found the program approach made it easier to adopt new technologies. The Midwest Engineering Solution Center introduced the project team to virtual server networks for simulating production systems. The conversion team immediately saw the benefit these technologies would have for virtual factory acceptance testing (FAT) and operator training. Using virtual server networks, the project team was able to quickly and remotely perform FAT, taking it off the critical path. Those same systems also allowed operators to practice their processes on simulations that perfectly replicated the systems they would be working with when plant conversion was completed. On the first day of operation, plant operators were able to begin running batches with confidence, having performed the exact same operations during training.



“We experienced great success due to an existing program relationship which is a partnership in delivering value to Solvay. Program team members have regular dialogues, opening new avenues to deliver value beyond just conversion projects.”

Ryan Scofield
Novacare North America
Process Automation Manager
Solvay

The new program approach showed successful results almost immediately. The first two projects that the team completed came in on time and under budget. The company not only saved money by avoiding late or post-project changes but was also able to put its new control system features to work immediately, with instant results in production improvement. One facility was able to make recipe adjustments that weren't possible before the upgrade. These adjustments improved production by nearly 6,000 pounds per day, providing a revenue increase of more than \$450,000 per year for a single reactor.

DeltaV Electronic Marshalling with CHARMs has made it easier for maintenance teams to troubleshoot issues and implement new projects across the plants. Technicians gain the flexibility to quickly change analog input for discrete output providing more flexibility for equipment. In addition, the use of CHARMs has lowered wiring costs on installations, and facilitated better design, simplifying long-term management and process optimization.

Novecare has also seen safety enhancements. With the addition of DeltaV integrated control and safety systems at one location, Novecare now has visibility of SIS interlock trips, improving safety and shortening downtime when equipment fails.

Developing a program approach with Emerson's Midwest Engineering Solution Center has allowed Novecare to mitigate risk in capital project execution. For an organization that performs many capital projects annually, this risk mitigation leads to more repeatable, sustainable success, and, ultimately, to better operations across the lifecycle of Solvay's equipment.

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