

CHEMICAL



ENHANCING PRODUCTION

Avid Solutions increased plant output and developed a system that operators were comfortable using.

Background

Avid worked with a plant that produces a resin material for aircraft bodies. The customer was facing two main problems. First, they were far behind on making their product and did not have the capacity to make enough to sell to their customer, who was demanding more and more product. The plant was in danger of not fulfilling the orders, which would put them in breach of contract and subject them to penalties imposed by their customer. Second, the existing control system was limited in the additional I/O capacity and parts available to fully upgrade the process to alleviate the production shortage in the long-term.

Approach

The first part of the project was to increase their capacity to alleviate their potential production shortage. The Avid team worked to remove the bottleneck in the process by increasing the number of leachers in the system. The leachers have the longest cycle time in the system, and the reactor systems on the front end and the dryers on the back end were both scheduled around the leacher availability. This inefficiency in the system was addressed by adding an additional leacher, and configuring it on the existing APACS control system. The second part of the project was to convert the existing APACS system to DeltaV to allow for greater overall capacity and to update the system to one they could support, both from a configuration and parts perspective. As part of this, we further increased the process capacity by adding a third reactor to the front end, a new solvent recovery system, and a second dryer

on the back end. Overall, the system was comprised of approximately 2500 I/O points. Part of the functionality they had designed into APACS was a separate controller operating as a safety system. In order to replicate this with the appropriate SIL level in DeltaV, we installed an Allen Bradley PLC as a safety system. Communication from the PLC to the DeltaV was through a virtual I/O module for the DeltaV. With that functionality and the capacity increase, they have not operated at full capacity. Yet they are still able to meet their order requirements and have room to make more product if needed.

Results

The project was completed efficiently, on-time and under budget. A staged-implementation resulting in no downtime was conducted, which was critical to the customer's needs. One of the challenges this project faced was operator buy-in. In many cases, we have operators who have worked on the same system for 10 or 15 years, and Avid is brought in to replace what they have been familiar with. Often, this causes some operators to be concerned. At the conclusion of this project, all of the operators were comfortable with DeltaV. Operator training was provided during each plant site visit. Operators were walked through the different areas they were having issues with and Avid staff was available over the phone. They have an automation engineer who is now able to look at how things are working and can start troubleshooting to find out what the problem might be, which was a big improvement from the previous level of APACS support they had received.

Applications

Advanced Process Control

Batch & Continuous Processes

Blenders & Fitz Mills

Conveying

Fluid Bed Dryers

Plant Optimization (Tuning & Control Evaluations)

Product Milling

Technologies

Allen-Bradley Rockwell

Emerson DeltaV

PI Historian

Rockwell Software

Siemens/Moore APACS

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