ACTEMIUM

EMULATE3D by ROCKWELL AUTOMATION

Case study

Digital twin helps meet 4-day swap-over for major system upgrade

Scope & Challenges

A blue-chip client needed a major upgrade of a process control system on a critical plant, all within a 4-day install and commission window. The tight install and commissioning timeline was the result of the production process itself, which involved a complex network of pipes providing material delivery of a perishable stock between mixing, storage and production tanks, with limited stock buffer. We needed a way to be able to test the system extensively offline to provide confidence in the software before beginning the install and commission process within this strict 4-day window.

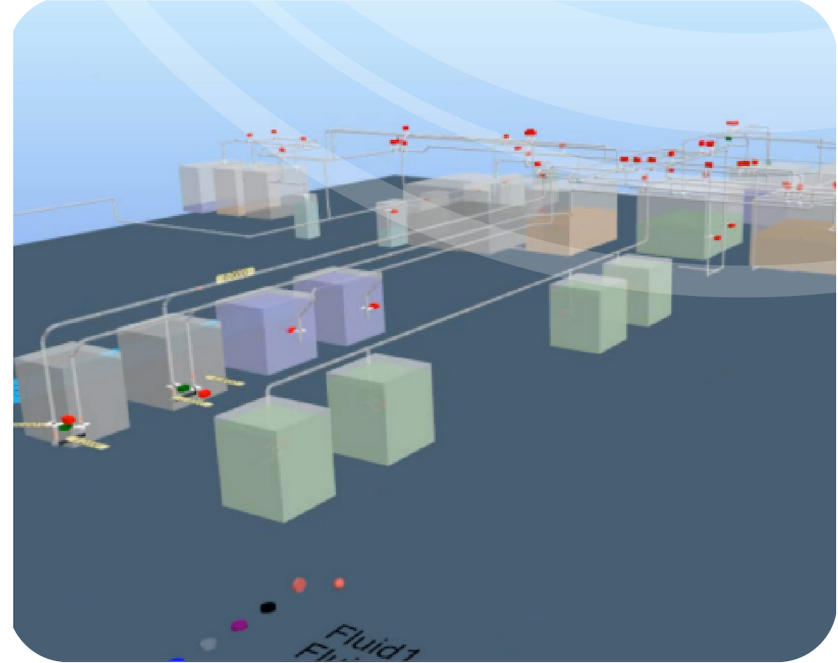## Benefits from using Digital Twinning

- **Able to conduct extensive, risk-free process validation during a significant FAT schedule,**

- **Increased confidence for discrete, process and hybrid applications through simulation and emulation.**

- **Reduced potential risks and errors associated with implementing a new process or packaging line.**

Solution & Results

An Emulate3D Digital Twin developed by AutoLogic provided visibility across the plant and the ability to rigorously test the controller upgrade. The model used AutoLogic's process catalogues that allow tanks, pipes, valves, pumps and fluid flow to be simulated within Emulate3D.

The model works within a single framework that encompasses the process from design and development through to site validation. Fluid viscosity, head pressure, pipe diameter, and distance travelled were all modelled, and tank fill rates validated against known site benchmarks.

We ran the model in simulation mode to fully test new capacity options. We had a successful Factory Acceptance Test (FAT) and production was fully available after the 4-day shutdown. Our customer now includes emulation in all upgrade specifications.

We were so impressed with the results that we at Actemium invested in training our engineers to fully deliver Emulate 3D models for any client, from concept to final commissioning and beyond. The model developed for this client has proven to be an excellent training tool.

Learn more about Digital Twins