

Biosynthetic Fermentation Simulation Project

- Simulation Modeling
- Facility Planning

A pharmaceutical producer was interested in expanding their production capabilities by adding an additional fermentation rig to their existing process. Op2mize personnel developed a simulation model that allowed the user to experiment with the two rigs and determine how the old and new system would work together to produce the maximum amount of product while minimizing peak demands on system resources. The simulation model was developed in ProModel and used Excel spreadsheets to input data into the model.

The simulation model, Figure 1, depicts the process as product moves from tank to tank among the rigs. The user was able to determine a schedule that would minimize the maximum required amount cooling water required. A sample of the water usage output is depicted in Figure 2.

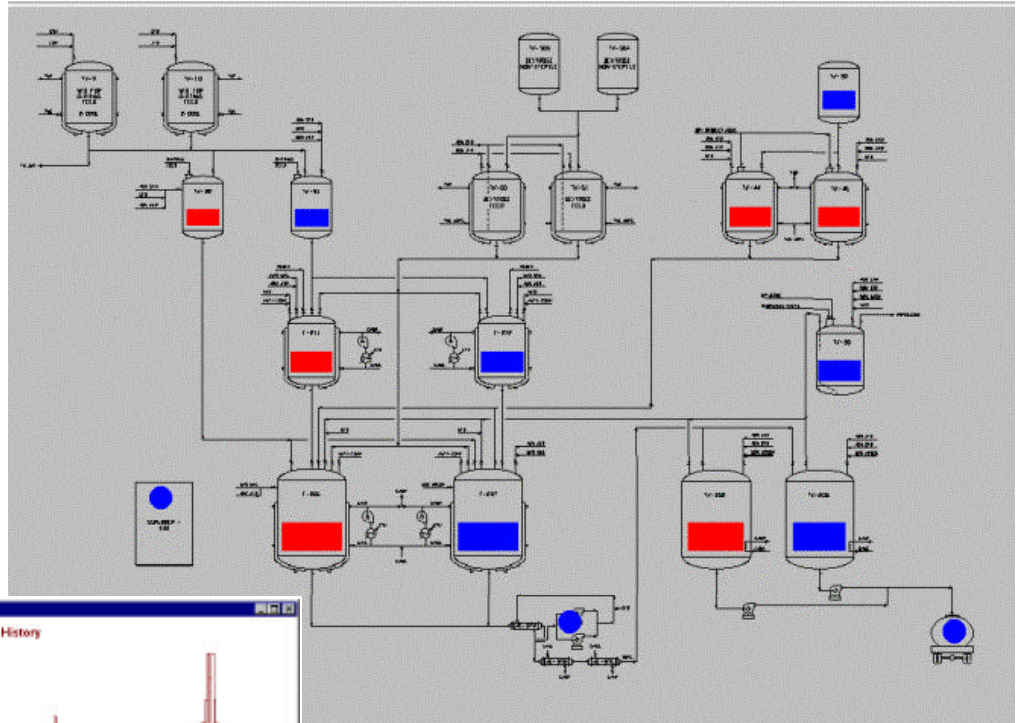


Figure 1: Simulation Graphics

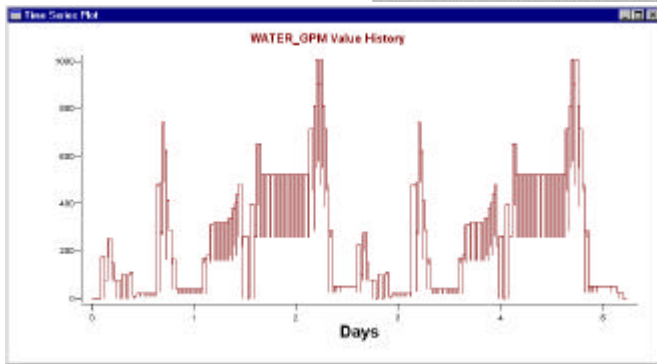


Figure 2: Simulation Output

Input Data

Several spreadsheets were used to input data into the simulation model which included:

- Run page that included basic model parameters and the button to initiate model execution. Figure 3
- Batch schedule
- Equipment start schedule
- Process tables – process steps and values for each equipment
- Equipment name/model number reference

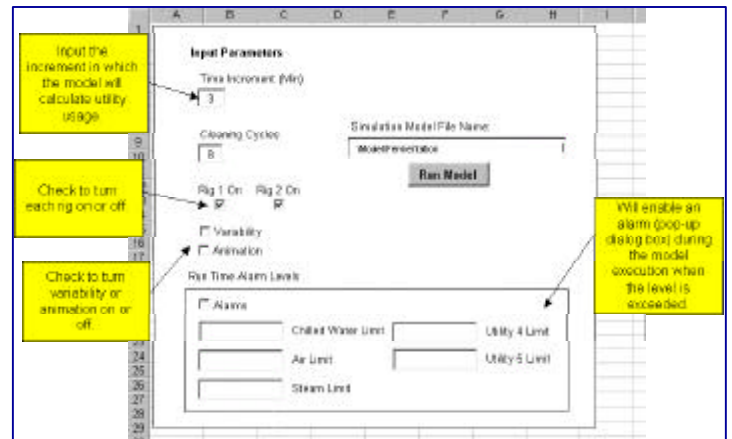


Figure 3: Simulation Run Page