The 800xA Simulator improves safety and productivity through the concept of life cycle simulation; starting off as an Engineering Simulator for engineering, design, and testing, followed by control system checkout to verify and if necessary modify the control logic before the commissioning. Then used as an Operator Training Simulator for training on an identical control system interface for plant familiarization, safety system operation, start-up, shutdown, response on malfunction, emergencies, and safety procedures. This is difficult and in most cases impossible to do on the real process. Finally, plant modification and optimization studies can be done on the simulator before costly installation.