Operator Training Simulators

Operator Training Simulators (OTS) allow operators to train on a computer in an identical environment to the control room. SimSci simulation and training tools provide in-depth process understanding through accurate simulation models of the plant that aid in process analysis and operator training. This provides safe and efficient operations that benefit the plant, the workers, the surrounding community and the overall profitability of the company.
SUMMARY

SimSci Dynamic Simulation and Operator Training Simulator (OTS) solutions enable companies to rise above the challenges of designing, commissioning, controlling and operating a process plant safely, reliably and profitably.

BUSINESS VALUE

SimSci customers have found that a relatively small investment in an OTS can save hundreds of thousands or millions of dollars. Benefits range from:

- Capital cost minimization on new design or revamps
- Start-up reduction by 3-5 days
- Increased safety and awareness
- Improved operator readiness

Leading the Way to Operational Excellence

Today control room operators run mission critical processes across multibillion dollar businesses where missteps can be very costly in terms of safety, availability and profitability:

- According to a recent ARC Advisory Group study titled “Why We Need a Better Approach to Procedural Automation,” it was reported that operator error results in 42 percent of unscheduled plant shutdowns accounting for the highest dollar losses per incident in the process industries
- A recent J & H Marsh & McLennan report documents that the average cost per major incident related to Operator error exceeds $80M
- The Chemical Safety Topical Committee sponsored by the Department of Energy (DOE) findings reveal there is one chemical incident per day on average in the U.S. with an estimated cost over $2 million per incident

These challenges are compounded by both mobile and aging workforces. This creates the need for a framework and process to assimilate newer less well trained workers more quickly than ever before.

Operator training has always been a priority for Operational Excellence. But today, making better decisions faster is not just an advantage, it’s a mandatory requirement to stay in business.

Driven by a growing awareness of these issues, today many companies are turning to SimSci™ for help with initiatives that drive Operational Excellence. One of the tools in the SimSci toolkit is its industry leading Operator Training Simulator solutions that help companies to rise above the dynamic challenges of designing, commissioning, controlling and operating their process plants safely, reliably and profitably.

Simplified Operator Training Simulators (OTS) have been available in the marketplace for a long time. However in the last six years SimSci has introduced ground breaking software which combined with the broader availability of low-priced, high power computing platforms creates a new benchmark for performance and rigor. No longer do Training Simulators belong primarily in the realm of the airline, nuclear power and aerospace industries. SimSci solutions are cost-effective and are being widely adopted by “Tier 1” customers in the Oil and Gas, Hydrocarbon Processing and Power Industries.

Today using SimSci Operator Training Solutions an operator can receive plant specific training and learn how to perform a full startup and shutdown of a plant or facility and how to follow emergency procedures in a completely risk free environment. Mistakes can be made and lessons learned without risking personnel or assets. Unique in the industry, a SimSci simulator is subject to the same hydraulic, heat transfer, and equipment constraints seen in the actual plant and will respond directly to the actual or proposed control configuration in real time or even many times faster than real time. This allows an operator to perform a full start-up hundreds of times even before turning the first switch in the plant.
A New Leader in the Field (and the Control Room)

In the last few years, SimSci has become the new “Tier 1” OTS supplier to the Process and Power Industries, as well as the fastest growing OTS provider, leading the market with its DYNSIM® software. SimSci OTS systems have been used worldwide on large-scale projects for thoroughly checking control system configurations before they are applied to the actual plant and for operations personnel training. To date, SimSci has delivered over 300 OTS systems around the world. These solutions provide a modern alternative to dated and fragmented offerings to enable true Operational Excellence.

To further demonstrate its leadership position, SimSci has taken Operator Training Simulators one step further by providing simulation training in a 3D environment. Virtual reality is a rapidly growing technology that utilizes the increased power of computers to simulate real or imaginary environments and situations with a high degree of realism and interactivity. SimSci has now integrated 3D Virtual Reality into our Operator Training Simulator solution to create a system that can replicate not just the control room but the entire plant – both sight and sound.

This is particularly useful when companies need to train field operators working in hazardous or mission-critical locations. This type of advanced simulation also enables training and operations practices to be enforced, standardized and proliferated, from employee to employee, and it maintains consistency by shift, by plant or by site. Comprehensive 3D simulation solutions link control room operators to field and maintenance operators by means of a high-fidelity process simulation and a 3D virtual walkthrough plant environment. As a result, plant crew training improves safety by enabling operators to perform tasks in a simulated environment, react quickly and correctly, facilitate reactions in high-stress conditions, and instill standards for team training and communications.
Operator Training Simulators

Awards and Honors

Dow Corning 2007 Excellence Award: SimSci Operator Training Simulator
Plant Engineering 2009 Product of the Year Finalist: SimSci Immersive Training Solution
Control Magazine 2011 Reader’s Choice Award for the #1 Simulation Software Vendor: SimSci
Processing 2009 Breakthrough Product: SimSci Immersive Training Solution

Bottom-line: Value and Benefits

Operator Training Simulators (OTS) provide plant field and control room operators, maintenance and HSE personnel efficient knowledge transfer and skill development in a matter of months rather than years.

With an OTS, operators are able to improve overall skills and performance by experiencing plant "issues" and "problems" in a simulated or even a virtual reality digital environment. This approach improves operator responses that can:

- Reduce the number of abnormal situations and unplanned shutdowns
- Lower the risk of loss of life, assets, production and/or environmental releases
- Increase operator awareness, skills and readiness

These systems help ensure faster start-up times, quicker recovery from process upsets with less equipment stresses, and the ability to correct procedure errors prior to on-line production.

In addition, operator training and plant performance improvements reduce capital investment costs, increase process yields and enhance management decisions while leveraging existing technology investments.

An investment in an OTS can save hundreds of thousands of dollars or more with paybacks measured in a matter of weeks or months.

Learn More

Operator Training Simulators:
software.invensys.com/products/simsci/operate/

Operator Effectiveness:
software.invensys.com/products/simsci/optimize/

Control System Checkout:
software.invensys.com/products/simsci/operate/dynsim-checkout/