

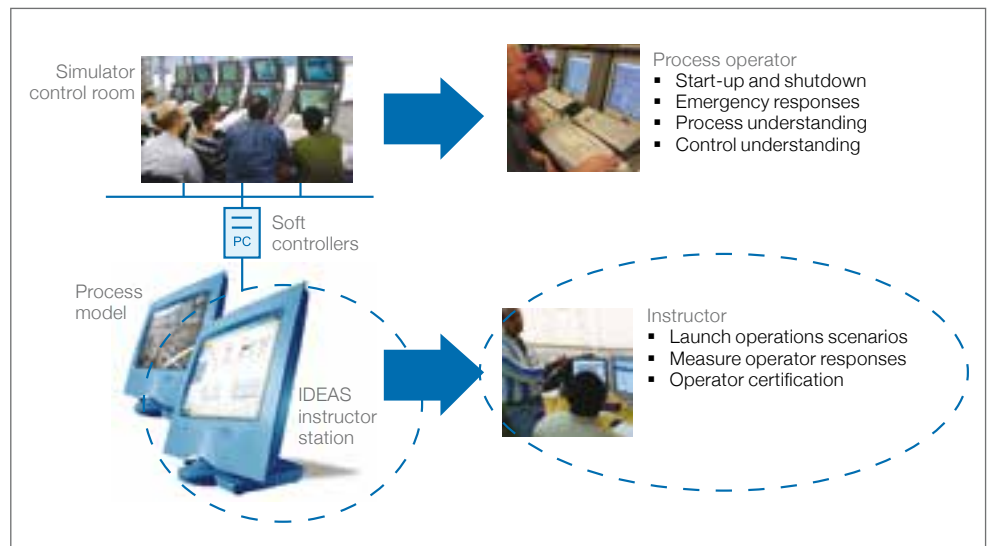
# The challenge: To train your operators on a process—and meet your start-up schedule

## The solution: IDEAS instructor

**IDEAS is an essential tool for operator training; it works like a flight simulator, allowing trainees to gain realistic, hands-on experience without inflicting harm on themselves, the environment, or the plant.**

The IDEAS instructor module can help train operators months before the actual plant is up and running. It helps produce better trained operators—operators who will start up new processes faster, react more wisely to plant upsets, and be more productive.

IDEAS instructor contains preconfigured scenarios that teach, train, and challenge trainees on process upsets, including two of the most intensive and complex procedures—start-up and shutdown. We can all imagine this scenario: a relatively new operator is on shift when suddenly a tailings line starts to sand-out. In most cases, such a scenario would have significant safety, environmental, or production consequences—but your new operator, who has practiced start-up and shutdown on the IDEAS simulator, immediately



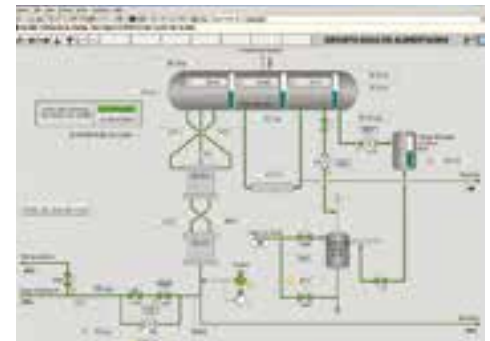
▲ Where IDEAS instructor fits into an operator training system

ately makes the correct decisions and your operation continues without incident.

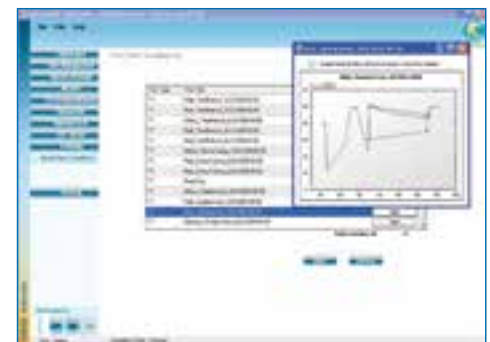
### Operator interface

The simulator allows the actual plant configuration to be loaded into the training system, so that operators will be trained using the same interface (including the same logic, keyboard, and graphics) as the actual plant. The simulator enhances the learning process by actively involving the operators and providing immediate feedback without risk to production.

The view from the simulator is identical to the actual DCS screen. ▼



A screen shot from IDEAS instructor demonstrates the easy-to-use interface. ▼



### Benefits

- Teach plant operators safely and reliably
- Have personnel practice intensive and complex procedures
- Monitor trainee progress and assess performance
- Standardize and create consistent training

### Instructor interface

IDEAS instructor software enables you to track individual employee performance, including login and fault scenario management. The operators' performance in executing start-up, shutdown, and normal operating procedures is assessed by tracking selected process variables (for example, temperature, pressure, and flow).

## Success story

**Customer:** Shell Albian Sands

**Simulation objective:**

- Process verification
- Control logic verification
- Train plant operators

IDEAS played a significant role in the Shell Albian Sands facility in northern Alberta, Canada. The project implemented new technology to produce superior quality bitumen product and IDEAS was used to verify process concepts before the plant went into operation.

IDEAS was then used to check not only the I/O of the DCS, but also the DCS logic and complicated control loops—saving money and valuable time during start-up. For example, IDEAS was able to detect an error in a viscosity control loop equation that would only have become apparent during start-up.

The other key project goal for IDEAS was to train operators prior to start-up of the facility—something accomplished with great success.

“The feedback from the operators has been extremely good,” said Gary Foulds of Shell Albian Sands. “We’ve been able to take them through the operating procedures, the more typical ones like start-up and shutdown, but also taking them into process operating regimes, which are undesirable, so that they can also see the consequences prior to start-up rather than on the real plant.”

The training simulator has since been updated to allow operators to train on different process units to help increase their skills and expertise in each area. The system uses the same configuration and displays as the ac-



tual operator workstations in the control room, DCS and PLCs, and represents a dynamic model of the different process units found in the Shell Albian Sands plant. In addition, it has trainer functions such as the “snapshot” feature, which allows the trainer to start the process plant from pre-saved operating conditions.

When this project was proposed, the oil sands industry was at a crossroads and Shell Albian Sands was looked on as a key “test case” for future expansions of the industry. Because of the technical and commercial

success of this project, many new projects have come online since.

The IDEAS models were useful in minimizing the process risk associated with the development of new process concepts. A project of this magnitude called for the best practices that the customer could bring to bear and IDEAS was considered a small price to pay compared to the process risk and the magnitude of the capital investment being made.