

Turn Operator Power into Operational Excellence

Emerson's Dynamic Simulation Solutions Grow Knowledge through Experience

“An American Petroleum Institute study found there was a \$350,000 per year per operator positive financial impact when an operator was ‘upskilled’ from an average to an advanced level. Insufficiently trained operators are the single largest source of production losses.”

— American Petroleum Institute

What if ...

- any operator could efficiently start-up the process and deal with abnormal situations effectively?
- risk could be reduced with a fully trained team ready on day-one after a process change?
- you could identify and address commissioning issues earlier, resulting in savings both for schedule and cost?

Operations personnel must comprehend large amounts of data and deal with difficult issues to ensure a facility starts-up and runs smoothly. This is especially true during the start-up of a facility, when operators can contribute significantly to project certainty and success. They must be armed with knowledge of how to operate the process and how to deal with abnormal situations. Emerson's Dynamic Simulation Solutions equip operators with the tools and the mindset to achieve both.

With the current shortage of skilled personnel and loss of knowledge, facilities must find ways to train new personnel effectively and efficiently, while having minimum impact upon production.

How does the shortage of skill and knowledge transfer affect your facility and operations? The following are typical pains which indicate the need for improved operator training and decision support of a process:

INEXPERIENCED OPERATORS

The veteran operators you rely on every day have a valuable and deep seated knowledge, which has been gained over time. Your new operators have the intelligence required to perform their jobs, but they need realistic, non-intrusive training to get them on the path to operational excellence. How can they quickly and conclusively gain the right competencies for the job while being ready to evolve as the industry does? You do not have years—or even many months—to get them to that level of competency. In addition, you cannot remove them from the responsibilities of normal day-to-day operations in order to achieve this.

POOR RESPONSE TO ABNORMAL SITUATIONS

Studies show that people under stress often make incorrect choices—not good in a situation where an error could cause severe personal injury or a critical process upset with significant financial implications. You need to know that the operator on duty, whether experienced or relatively new, can consistently guide the process to a stable condition no matter if they have seen the abnormal situation recently or never been exposed.

Because these unusual incidents affect both production and safety, not only must they be addressed quickly and accurately, but the solution must not generate additional hazards. Ultimately, how can you be sure all the operators have the same strong expertise and readiness when you have no way to practice abnormal situations in a live production facility?

UNACCEPTABLE SCHEDULE RISK FROM PROCESS CHANGES AND COMMISSIONING

Because evolving market conditions dictate production as well as improvements in efficiency, changes to the system can occur more often than some operators are ready for. How do you prepare personnel to bring changes online without incident? And how can commissioning of new equipment be accomplished efficiently? Both of these conditions are difficult to meet before changes are implemented and before the process must start-up.

DYNAMIC SIMULATION SOLUTIONS

Emerson's Dynamic Simulation Solutions build a world around your operators as they learn experientially. It's a world that looks exactly like your production facility — with the identical design and human-machine interface (HMI) as your process automation system.

TRAIN OPERATORS IN YOUR UNIQUE PROCESS

Emerson's Dynamic Simulation Solutions provides personnel an exact replica of your DeltaV production system on which to learn. Operators work through procedures step-by-step on a system that looks and feels genuine, but has no effect on the real process and exists in a safe environment where mistakes can be learned from without consequences. To further tailor the details to your needs, Emerson's operator training environment enables new scenarios to be developed quickly, further aligning the experience to that of the production system.

Because operations personnel learn in a simulated environment with a familiar HMI — rather than only in a verbal and written format — they better recognize situations in the live production environment. Personnel have physical memory (through hands-on learning) of how they solved problems. To supplement the physical learning, Emerson provides printed operator training courseware.

KNOW THAT OPERATORS CAN SEE AND CORRECT ISSUES

Emerson's Dynamic Simulation Solutions allow operators to go back to the point where they might have made an error and correct their response. Also, this enables them to replay and revisit the best practice and learn from errors. Learning is emphasized during timed learning events where the operator must successfully bring the system to normal performance within a defined period.

Situations can be slowed down in the simulated environment to analyze best responses, determine full impact, and optimize the process. Used as more than a training tool, this training solution is only part of a Multi-Purpose Dynamic Simulation's capabilities. It can also be used to assist end-users in engineering studies, identifying the root cause of an event.

Reinforcing correct responses and correcting mistakes, the Emerson operator training solution can snapshot the process during an abnormal situation so the operator can practice the situation again and avoid real-time errors. You can track performance because Emerson's solution sends automated training reports and provide insight into how operators performed in abnormal situations.

REDUCE RISK: TEST AND COMMISSION BEFORE FINALIZING A CHANGE

Operators can run scenarios to understand the impacts of a change. And through 3D visualization, operators see what the plant will look like physically before production begins. In addition, the Dynamic Simulation Solutions enables the control system for an entire facility to be tested, commissioned, and loop checked virtually before going forward to the production system — ensuring a smoother start-up and a more certain project schedule.

Based upon a recent survey, the top benefits received from implementing an operator training simulator were smoother start-ups and shutdowns (73%), fewer abnormal situations and trips (69%), and improved process knowledge (64%).

ARC Advisory Group - Operator Training Simulators Best Practices Survey Results, 2015.

Emerson Process Management

Asia Pacific: 65.6777.8211
Europe, Middle East: 41.41.768.6111
North America, Latin America:
T 1 (800) 833 8314 or
1 (512) 832 3774
www.emersonprocess.com/deltav

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