

Surry Power Station, Dominion

Embed SE State-of-the-Art Nuclear Power Training Program



Surry Nuclear Power Station, Virginia. This power station generate 1,598 megawatts of electric power from its two nuclear reactors - enough electricity to power 400,000 homes.

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Hal Warren

*Senior Instructor, Nuclear Training
Surry Nuclear Power Station*

A state-of-the-art, hands-on Embed SE (formerly called VisSim) training program was developed at Surry Power Station to improve the skills of operators in the use of controller modules that operate steam generator power-operated relief valves. The steam generator controller modules operate automatically or manually to open or close relief valves that allow for safe venting of pressures that build up in the reactor's three steam generators during shutdown.

"I developed [Embed SE] models that allow operators to change controller settings, analyze the effects of the changes, then explore them mathematically," said Hal Warren, Senior Instructor, Nuclear Training. "This helps operators develop a better understanding of the effects generated by each change."

Warren also developed an Embed SE model that depicts how station equipment responds to certain types of emergency events. It explores operation of the atmospheric dump valves in automatic and manual modes, as well as common system failures that can occur and the actions that need to be taken by operators to correct the situation. The simulations also provided plant engineers with a new method of troubleshooting systems and equipment without impacting station operation.



INDUSTRY

Nuclear Power

CHALLENGE

Develop a hands-on training program to improve the skills of nuclear power plant operators

SOLUTION

Use Embed SE to model controls and plant functions for the purpose of commissioning new processes and for operator training

BENEFITS

- Rapid method for understanding complex process controller concepts
- Improvement in operators's assimilation and retention of training material
- Shortened instruction time
- New methods for troubleshooting systems and equipment that do not adversely impact station operation

The Embed SE models can be used at an employee's workstation or can be projected in a classroom environment to provide a rapid method for understanding complex process controller concepts. Warren has noted that the feedback received from trainees indicated an improvement in the assimilation and retention of the training material. In addition, instruction time was reduced from 10 hours to two hours.

For his efforts, Warren was awarded a Training Excellence Award from the American Nuclear Society for achievement, excellence and innovation in nuclear training. The simulations also were recognized by the Institute of Nuclear Power Operations.

The VisSim™ product line has been renamed to Embed™ and Embed SE™



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