

Case Study

Woodside Improves Safety with UniSim Operator Training Simulator



“The Angel project at Woodside was an outstanding success. Thanks to Honeywell, our project came in on budget and met our demanding schedule. Honeywell’s UniSim Operator Training Simulator increased the competence and confidence of our staff when dealing with unsafe scenarios, plus reduced the number of trips.”

Benefits

At Woodside Energy Ltd., one of Australia’s top oil and gas exploration and production companies, production personnel were preparing for commissioning and startup activities at the Angel platform on the North West Shelf. With the pending startup came the challenge of ensuring all personnel were thoroughly trained and ready to perform on day one. Having installed a new process control system based on Honeywell’s Experion® Process Knowledge System (PKS), Woodside wanted to make sure that its operators were familiar with the new processes and graphics before manning the controls.

Recognizing that well-trained and confident operators have the ability to react quickly and diffuse potentially unsafe situations, Woodside opted to implement an operator training simulator to help mimic the real-world incidents that its operators might face.

Woodside Energy selected Honeywell’s UniSim® Operator Training Simulator (OTS) for advanced training and testing. By implementing UniSim, the company was able to provide realistic training scenarios to operators on the Angel platform and fully prepare them on operating the new platform. Other benefits achieved with UniSim included:

- Operators were trained and familiar with processes before startup and commissioning, saving at least five process trips
- Project was completed on time and on budget thanks to thorough planning, project management and positive team attitude

Dustin Taylor, Process Engineer, Woodside Energy Ltd.

- Comprehensive training featured a series of simulated upsets to ensure operators were confident in handling unexpected circumstances
- Improved safety by ensuring operators were comfortable on the simulator before manning controls
- Angel process design and methods of operation were validated through high-fidelity simulation prior to commissioning



Woodside Energy improved safety and shortened operator training with Honeywell’s UniSim.

Background

Woodside is one of Australia’s top 10 companies by market capitalization, and the nation’s largest publicly traded oil and gas exploration and production company. Based in Perth, Western Australia, the company has major operational assets and exploration and development interests on five continents, including sites in Australia and the United States.

In 50 years, Woodside has grown from a pioneer petroleum explorer to Australia's largest independent producer of oil and gas, and one of the world's largest producers of Liquefied Natural Gas (LNG).

Woodside operates a number of large resources projects including the North West Shelf Venture, which produces about 40 percent of Australia's oil and gas, Pluto LNG, Sunrise LNG development in the Timor Sea, Browse LNG and the Angel platform on the North West Shelf.

The Angel platform is located approximately 120 km northwest of Karratha in Western Australia and is about 50 km east of the North Rankin A platform. It stands in roughly 80 meters of water and is supplied by three subsea production wells. The platform's unique design enables it to be safely and securely powered and remotely controlled from North Rankin A via a subsea cable. Hydrocarbons are produced through one dry export processing unit and processed onshore at the Karratha gas plant.

Challenge

Woodside was preparing for the hydrocarbon processing commissioning and startup of its new Angel platform. Having installed new central control room facilities, the company needed to train and familiarize its operators with the new facility and Experion C300 system. The challenge was to make sure operators were comfortable and able to handle any situation that might arise, and ensure efficient operations.

"We installed a new C300 control system and had to familiarize our operators with the process and graphics before our hydrocarbon commissioning and startup activities," said Dustin Taylor, Process Engineer, Woodside Energy Ltd.

More Information

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Solution

Woodside deployed Honeywell's Experion C300 and UniSim Operator Training Simulator. UniSim provides highly efficient training because it is interactive and mimics the Distributed Control System (DCS) interface, providing risk-free and repeatable exercises to help build operator confidence in both normal operating procedures as well as abnormal situations where disturbances can affect the entire operation.

Honeywell provided OTS as the basis for the Angel Central Control Room operator training course. "The Angel training simulator was identical to our real Angel control room panel and enabled our operators to practice on the new C300 system," said Taylor. "We also utilized UniSim Design to model the process, which provided the dynamic process behavior for training our control panel operators."

The UniSim solution models routine operational scenarios, including startup, shutdown, normal steady-state and emergency operations. In addition, it is capable of simulating operations dictated by process disturbances and equipment failures introduced by the instructor.

The return on investment from the Honeywell training solution was substantial. Woodside reduced the number of trips due to operator training and improved safety by ensuring each operator was comfortable on the simulator and competent before manning the controls.

"The Angel simulation project was an outstanding success attributable to many factors including the people, project management, detailed planning, organization and great team spirit among both Woodside and Honeywell," added Taylor.

According to Woodside, the primary reason for the smooth startup and minimal trips was the training operators received on the OTS. "Before manning controls, each operator had completed extensive training on the OTS and became comfortable with the control system. We also ensured that the training program included a range of process upsets, which placed each operator in good stead for unexpected process upsets and, ultimately, directly contributed to the project's success," concluded Taylor.

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