

Case Study

Caltex Reduces Time to On-Spec Production With Operator Training Simulation Solution



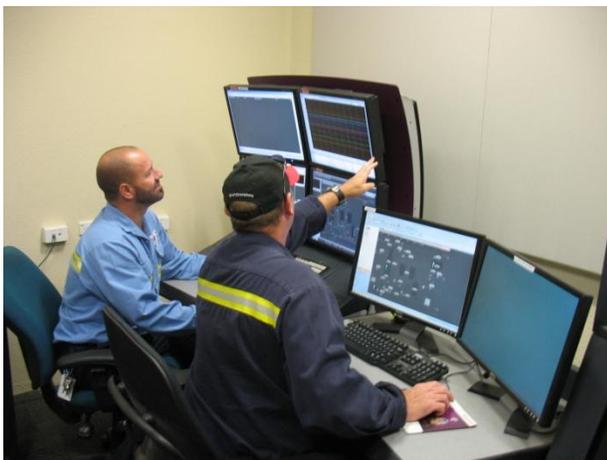
“Safe, reliable and efficient operation of a refinery means more than simply running a process — it involves analyzing how that process performs and enabling our operators to become competent on it before they enter the control room.”

- Allan Gunn, Area East Development Specialist, Caltex

Background

Located in Lytton, Australia, adjacent to the Port of Brisbane, Caltex Australia Pty Ltd's Queensland refinery was initially commissioned in 1965 by Ampol. The refinery is designed to refine light sweet crude oil for the 415 Caltex service stations in Queensland and meets 60 percent of the region's fuel requirements by supplying 109,000 barrels or 18 million liters of fuel each day.

Refineries like the Lytton site sometimes shy away from Operator Training Simulators (OTS) as there must be an ongoing program to realize benefits from their use, and a dedicated individual is needed to drive a simulation initiative. With the necessary support, however, OTS systems can become an ongoing success and gain acceptance as a valuable tool for operator training and revalidation.



Operating training simulator at the Caltex Lytton Refinery

Benefits

The Caltex Lytton Refinery has achieved a number of key benefits from the implementation of an OTS solution based on Honeywell's UniSim[®] Operations Suite. These include:

- Increased overall training of console operators
- Realistic instructional simulations to improve operator competency
- Accelerated knowledge transfer
- Faster recovery from trips and other abnormal conditions due to the ability to practice these scenarios, which raised operator skill levels

Challenge

In 2004, Caltex Australia launched an intensive Refining Performance Improvement Program (RPIP) with the aim of significantly increasing profitability and improving throughput. This program identified the need to increase production capacity for ultra-low sulphur diesel, which resulted in the installation of a new Diesel Hydro-treater Unit (DHTU) at the Lytton Refinery.

In the past, operator training at the Lytton site took 8 to 12 months to accomplish and did not provide a framework upon which to evaluate results. The facility lacked a view of practical operations and suffered from vague implementations. Testing of control strategies was also very difficult to undertake.

Refinery management sought an improved method of validating the competency of its console operators, recreating tests of operating scenarios, and learning from common mistakes.

Solution

Caltex chose Honeywell Process Solutions to implement a high-fidelity OTS system at the Lytton Refinery. Honeywell worked closely with refinery personnel to increase their knowledge of operator training simulators so they are better equipped to garner the benefits offered by OTS technology.

Employing Honeywell's UniSim Operations Suite, with the UniSim Design Suite tool used to build the model, the simulator was purchased as part of Caltex's DHTU-2 construction project. The simulator was assembled and Factory Acceptance Testing (FAT) was done during the building of the unit. Site Acceptance Testing (SAT) and training of console operators was carried out a number of months prior to project completion and introduction of feed into the new unit.

Caltex performed a comparison between the DHTU-2 and a similar unit previously upgraded without the use of an OTS. The simulated unit took six days to be on-line and on-spec, whereas the non-simulated unit took six weeks to reach full production.

On the DHTU-2 project, console operators were at ease and comfortable knowing they had done a full startup and shutdown two to three times prior to actual feed in.

By Caltex's estimation, the difference in time required to achieve on-spec production on the two DHTU units paid for the OTS solution many times over. The company has subsequently purchased a total of three simulators from Honeywell and the ongoing simulation program is producing excellent results with training and revalidation of console and outside personnel.

For More Information

Learn more about how Honeywell's UniSim Operations Suite can improve operator competency, visit our website www.honeywellprocess.com/software or contact your Honeywell account manager.

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Honeywell's technical resources facilitated Caltex's OTS implementation by offering support and assistance when needed. This effort has proved worthwhile, as it put simulation assets in total perspective in terms of their value and benefits. For example:

- Site personnel receive valuable information from the OTS even in the absence of an operator
- Different aspects of the business can be tested and evaluated
- Scenario validation can be effectively performed on an OTS, with operator performance mapped on a dashboard and report data made available to other parties
- Personnel have a greater opportunity to learn about different operating scenarios on a simulator, practice, and become proficient in appropriate actions.

Based on the benefits of improved console training and accelerated time to achieve operator competency, Caltex is planning for the implementation of OTS solutions at a few more of its existing plants.

About UniSim Operations Suite

UniSim Operations Suite is part of Honeywell's family of simulation software and services designed to improve performance throughout the lifecycle of a processing plant. UniSim Operations helps train process operators to ensure operator competency before they enter the control room. The UniSim Design Suite provides a powerful tool to help engineers create optimal process designs based on critical business objectives. Simulation models are completely compatible and inter-operable between the suites and may be leveraged into optimization solutions. The UniSim solution provides users with best-in-class technologies and comprehensive features, along with Honeywell's domain expertise in process simulation and operator training.

The Honeywell logo is displayed in a bold, red, sans-serif font.