

Total's Lindsey Refinery Improves Operations with Updated Honeywell Technology



“Honeywell has provided us with superior service and support over the years. It made sense to choose Honeywell to modernize our facility with the most updated automation technology including a state-of-the-art process simulator for operator training. It has helped us successfully revamp our refinery and improve the way we operate.”

Dave Jackson, Total Lindsey Oil Refinery

Benefits

As Britain's third largest oil refinery, Total's Lindsey refinery went through a major revamp in recent years. Recognizing the need for a complete re-instrumentation, objectives were to improve safety and to revamp the panel instrumentation to modernize the refinery's distributed control system (DCS).

Total selected Honeywell as the site automation specialist and key partner to help modernize the facility through the introduction of a site-wide DCS. This technology facilitated the centralization of refinery operations in a new control room. Operators were trained on the new system with Honeywell's UniSim® simulation technology.

UniSim improved operator effectiveness and helped the refinery comply with regulatory requirements and curb the loss of experience invested in its operators. In addition, UniSim technology helped increase reliability and length between shutdowns, and improved the effective use of control systems while meeting environmental and economic objectives.

Other benefits from the Honeywell partnership include:

- Centralized control room provides easy access to process and operating performance information as needed
- Integrated safety and control systems have enhanced plant safety
- Advanced process control can be run closer to specifications
- On-time delivery - hot cutover accomplished on time
- Familiarized operators with new instrument panel and improved training by developing skills in real-world environment
- Standardization of operator interfaces helped improve efficiency



Honeywell provided automation and simulation technology to improve operations at Total's Lindsey oil refinery.

Background

With operations in more than 130 countries, Total is the fifth largest publicly traded integrated international oil and gas company with more than 96,000 employees worldwide. Total engages in all aspects of the petroleum industry, including upstream operations (oil and gas exploration, development and production, LNG) and downstream operations (refining, marketing, and trading and shipping of crude oil and petroleum products).

Taking its name from one of the historic districts of North Lincolnshire, the Total-owned Lindsey oil refinery is currently Britain's third largest with a processing capacity in excess of 10 million tons per annum (over 200,000 barrels per day). The Lindsey refinery employs 500 people and has the capacity to produce 35 finished products.

Coming on-stream in 1968 and now incorporating some of the most advanced refining and conversion processes available, the Lindsey refinery has the flexibility to process over 40 different types of crude oil. The refinery is ideally situated geographically to take advantage of North Sea oil, which accounts for between 85 and 95 percent of the refinery feedstock.

Challenge

Total's Lindsey refinery had some specific challenges related to the modernization of its plant. In addition to a DCS migration plan, the refinery also wanted to incorporate a simulation solution to help consolidate the combined experience of its operators and improve learning skills through a detailed program and structured approach.

"Our automation technology was due for a major overhaul and we knew an investment was needed in a simulator to help our operators gain valuable experience to effectively meet the requirements for safe and efficient operation," said Dave Jackson, Total Lindsey Oil Refinery.

Solution

With Honeywell's solutions, support and systems the Lindsey refinery was able to update its legacy systems and move into a new centralized control room.

"Working side by side with Honeywell, we were able to develop a comprehensive plan and execute it together to help make centralized control rooms a reality," said Don Boylen, Total Lindsey Oil Refinery.

The new central control room has increased operator efficiency by providing operators with access to more process knowledge to make better decisions faster. Operators now have a plant-wide view across the refinery to ensure process operations are running safely and effectively, meeting operational targets at various stages in the refinery.

The Lindsey refinery implemented Honeywell's UniSim high-fidelity operator training simulator to train employees on its systems, processes and procedures to help comply with regulations and demonstrate its commitment to operator competency.

"We knew that in order to make this re-instrumentation a success it was critical to ensure that we trained our operators to make effective use of the new technology and make sure they are fully supported to make the transition," said Jackson. "Honeywell's simulator gave us a first class product and together we developed an ever-growing training program to continuously improve our operational effectiveness and the people who deliver it. Our strategic direction requires that we maximize the use of the simulator and give operators the confidence they need to run the refinery at its optimal performance consistently and safely."

Honeywell's UniSim simulator has now effectively facilitated the capture of critical operational experience into training guides to retain operational knowledge that was previously being lost. Total's Lindsey refinery operates a formalized training program to increase operator effectiveness, as well as retain critical experience within the operations team.

Although the refinery had challenges to overcome with the integration of new simulation software and data integrity, the site acceptance test was carried out successfully and earned excellent feedback from refinery operators.

"We realized how to maximize the use of Honeywell's simulator and provide a very robust, lifelike environment incorporating realistic training exercises and regular updates to maintain fidelity," said Jackson. "Honeywell's experience and expertise in advanced control and simulation systems made the difference in our refinery and helped us achieve our project goals and improve our efficiency."

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More Information

For more information on Honeywell solutions, visit www.honeywell.com/ps or contact your Honeywell account manager.

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