

Case Study

Honeywell's OTS Helps Saratov Oil Refinery Ensure Efficient and Reliable Processes



“Honeywell’s operator training simulators help us to train process unit operators to analyze our control systems and to assess process alternatives promptly.”

Michael Zenyukov, Chief process engineer, Saratov Oil Refinery

Background

JSC Saratov Oil Refinery is one of Russia’s leading refineries in the Saratov region. Processing crude oil to produce more than 20 varieties of petroleum products, including premium gasolines, fuel oil, bitumen, diesel fuel, sulfur, and vacuum gas oil, the refinery traces its history back to April 27th, 1934, when the first oil refining unit was launched. All motor fuels produced by the refinery meet the highest Euro-5 environmental standards.

In March 2013, the refinery became part of Rosneft Oil Company. At that time, a multi-year development program was launched, with a primary objective of improving overall refining efficiency and increasing light fuel product yield.

Challenge

The upgrade and launch of the development program introduced new technology and process changes, resulting in the need for an efficient and thorough level of personnel training, including an overhaul of their operator training program.

Rosneft identified training challenges in three primary areas:

- **Operator training** to improve overall understanding of process functionality and to capitalize on existing skills,
- **Tuning control** through analysis of control systems and configurations, and
- **Engineering tasks**, including rapid assessment of process alternatives.

Solution

Rosneft invested in Honeywell’s Operator Training and Simulation (OTS) to realize the following benefits:

- **Reduce Start-Up times and sustain safe, optimum production** by improving skills needed to monitor and control processes during startup and shutdown, as well as training on safe control in normal, abnormal and emergency situations
- **Improve operator diagnostic skills**



Saratov Oil Refinery, recently expanded, began in 1934. The refinery’s capacity is 6.75 million tons of oil per year.

- **Improve training efficiency** to minimize training time
- **Reduce incidents and improve process safety**
- **Maintain operators’ ability** to respond to abnormal and emergency situations
- **Avoid the risk of human error** in actual process operations during new operator training
- **Investigate and analyze the impact of process parameters**, internal and external disturbances on the yield and quality of products and
- **Periodically train on isolation of safety incidents** caused by both external and internal disturbances, including operational disorders, failures, faults and breakdowns of various types of equipment.

Results

Honeywell has become one the main suppliers of technologies for Saratov oil refinery during past years. It has been demonstrated by several previous projects that were implemented. The first project realized at the refinery was the L-35-11/300 catalytic reformer. In 2012, after the refinery underwent a large-scale

upgrade, Honeywell began an OTS design for the newly built isomerization unit.

In 2014, development began on the design and implementation of a computer-based OTS for the PSA unit. All of the simulators, both those already implemented and the one currently under development, are based on a modern simulation platform designed by Honeywell.

The platform includes the following elements:

- **Process simulation engine** provides an opportunity to create mathematical models of technological processes, which are applicable not only for education purposes but also for solving real engineering tasks.
- **Control and ESD simulation engine**, which can simulate control algorithms and emergency protection, allowing operators to perform operations in realistic conditions.
- **Instructor workstation**, which is equipped with features for efficient training delivery on one or more operator workstations with an interface identical to that of the actual process control system. The interactive high-precision process model enables highly efficient personnel training. The simulator provides risk-free and repeatable exercises, and trains for normal operating situations as well as specific disturbances.

For More Information

To learn more about Honeywell's products and services, visit our website www.honeywellprocess.com or contact your Honeywell account manager.

Honeywell Process Solutions

Honeywell
1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Arlington Business Park,
Bracknell, Berkshire, England RG12 1EB UK

Shanghai City Centre, 100 Junyi Road
Shanghai, China 20051