

Preemraff Lysekil Increases Efficiency in Off-site Blending and Movement Management

Case Study

“The migration from legacy Honeywell OM&S to the Honeywell Blending and Movement Management solution went very smoothly and was on-time. Blending and Movement Management is reliable and helps us solve our problems.”

Ronny Pettersson, System Administrator Instrument, Preemraff Lysekil

Background

Preem AB, headquartered in Stockholm, is the largest oil company in Sweden, with a refining capacity of more than 18 million cubic meters of crude oil every year. Preem's two refineries, in Göteborg and Lysekil, are organized and operated as one joint refinery - Preemraff.



Production and the facilities at Preemraff Lysekil and Preemraff Göteborg are managed and optimized as one system with shared management, strategy, development and future. Intensive effort is under way to work together to achieve the common objective of being one of Europe's most efficient refinery systems.

Preem is the biggest supplier of ECO Diesel in the Swedish market. ECO Diesel has a sulfur content of less than 5 ppm (parts per million), significantly lower than the maximum 50 ppm that has been the requirement in Europe since 2005.

With six operational depots, Preem also runs approximately 600 gas stations for private individuals and for heavy goods vehicles. Preem accounts for 80% of Swedish refining capacity and 30% of the Nordic refining capacity.

Challenge

Preemraff Lysekil had employed Honeywell's Blend Ratio Control (BRC) and Storage Data Management, and it had become more difficult to support these legacy applications due to an aging infrastructure. Meeting this challenge required a new DCS system (Honeywell's Experion® PKS platform), along with a new in-line blending control system and inventory monitor and management system.

In terms of blending operations, since products are blended primarily to ship at Preem, there were additional challenges and requirements as described below.

- Alert the operator if there is a significant pressure drop at the loading arms before starting the blenders for direct loading to ships.
- If there is a problem in the harbor, then the pumps feeding the blender are shut down by the harbor operators through a digital signal. In-line blending systems must stop on the same signal to bring the blender to a state equivalent to the pumps.
- During blend to ship operation, an "Immediate shutdown" is always used to stop the blend in order to keep the volume accurate. During the shutdown, the in-line blending system

must stop the pumps prior to closing the flow controller valve.

- There was an operational requirement to be able to stop a blend, save its progress, and restart it at a later time.
- Interfacing of a third-party blend optimizer that was already available at site to Honeywell Experion Blend Controller (EBC).

In terms of inventory management, calculation and monitoring of tank data was critical for daily operations, and Preem faced multiple challenges in tank inventory calculations as listed below:

- Support for multiple stop gauge alarming
- The ability to automatically start or stop mixers based on tank level
- Calculation of tank mass and density based on the Hydrostatic method
- Support for multiple level sensors
- Tank shell volume correction

Solution

Preem chose Honeywell Blending and Movement Management solution because of its ability to address these unique challenges and also because of their past success with Honeywell's blending and inventory monitoring solutions.

Experion Blend Controller controls the operation of in-line blenders for gasoline, distillate, fuel oil, crude, bitumen and chemical blending applications. EBC ensures that components

For More Information

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Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042

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

Shanghai City Centre, 100 Zunyi Road
Shanghai, China 200051

www.honeywellprocess.com

are blended in accordance with blend recipe specifications by controlling the pumps and flow controllers associated with the blending application.

Honeywell Inventory Monitor (IM) is used to collect and monitor tank inventory data at plant sites and to address the challenges in inventory calculation outlined above.

Honeywell LIMSViewer is a lab data interface application that enables operators to view, download, and approve LIMS data.

EBC, IM, and LIMS Viewer are part of the Honeywell Blending and Movement Management solution (recently renamed as Profit® Blending and Movement) that delivers complete planning, execution and performance monitoring of off-sites blending and movement operations.

Benefits

Preem has five blenders at their Lysekil facilities: two diesel blenders, a gasoline blender, a bunker oil blender, and a fuel oil blender. For these blenders, the Honeywell Experion Blend Controller (EBC) was selected to replace an older Honeywell application that was becoming more difficult to support. EBC was initially installed in 2005 for one Diesel Blender, then the second Diesel blender was also upgraded to EBC. Finally in 2015 the remaining three blenders were upgraded to EBC. These upgrades ensure that Preem continues to achieve the following benefits for its blending operations:

- Improved blending efficiency
- Stable and reliable blender operation
- Meeting all return on investment (ROI) targets

In addition, Preem selected the Honeywell Inventory Monitor (IM) to replace Honeywell Storage Data Management (SDM) that was becoming older and more difficult to support. Preem uses IM to collect and monitor inventory data for approximately 90 tanks at their facilities at Lysekil, resulting in improved tank farm safety and monitoring.

The implementation and upgrades went extremely smoothly with a minimum disturbance to daily operation, and were completed on-time.