

SUEZ's InSight* monitors membrane performance and visualizes trends for paper company



Figure 1 - Boiler system at SAICA plant

challenge

Seasonal fluctuations in river water is one of the most difficult issues to manage in Reverse Osmosis (RO) water treatment due to changes in solids and colloids within the water.

SAICA, a European market-leading paper and board packaging company, needed to find a solution in Spain to ensure consistent quality of influent water coming from the nearby Ebro River and protect its RO membranes from costly damage.

The company chose SUEZ to manage control of the RO system for its cogeneration plant located close to one of largest rivers in Spain, and provide a comprehensive RO solution.

solution

SUEZ's RO membrane solution included biocide and antiscalant chemical treatment in addition to technical support for daily issues due to a high salt density index (SDI), a typical measurement in reverse osmosis that determines the number of solids present in the water.

In addition, the SUEZ team recommended the installation of InSight, an Industrial Internet solution for improved performance management of water treatment systems, on the RO membranes to monitor and normalize the permeate flow control, and replace the previous manual data entry methods.

InSight connects people and data to provide a total system view of performance, and can alert operators to flow changes and other problem indicators. The platform also uses powerful analytics to resolve critical issues, prevent problems before they occur, and optimize operations for greater productivity, reliability, and reduced costs.

results

Monitoring and Reporting

InSight had an immediate impact to plant operations shortly after its installation in July 2014.

An antiscalant dosing pump connected to the membrane system became plugged, greatly impacting the effectiveness of the chemical treatment and jeopardizing the health of the RO membranes. InSight revealed, almost immediately, loss of performance in the permeate flow chart, with a decrease of more than 25% in just two days.

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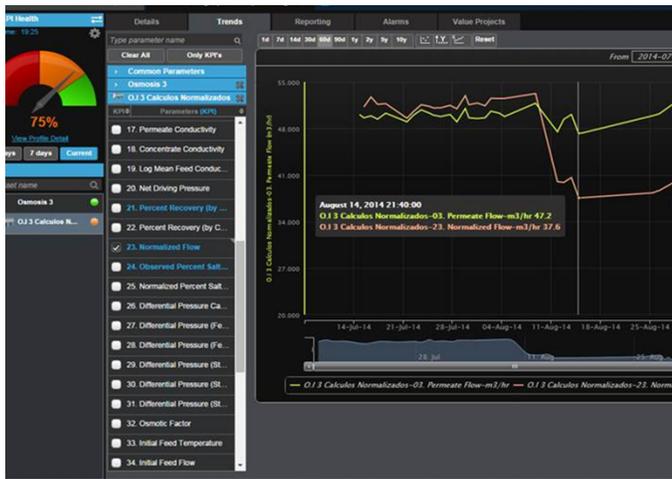


Figure 2 - Normalized flow within SAICA's RO membranes

This problem would not normally have been identified until much later. By uploading asset data into InSight, the system identified a blockage, and alerted operators who were quickly dispatched to fix the antiscalant dosing pump, avoiding the loss of critical performance and preventing plant shutdown.

Once the normalized flow data was uploaded into InSight and the problem was identified, SUEZ recommended a prompt chemical cleaning of the membranes, which saved the membranes from early replacement, and avoided additional costs for the customer.

As a result, SAICA chose to extend the use of InSight to another critical RO system within the plant to avoid potential issues and extend total membrane life. It is now considered a best practice prevention and performance optimization tool for the customer.

In the future, InSight's predictive capabilities will be able to show when a cleaning procedure is recommended (such as loss of normalized permeate flow or increased normalized salt passage), saving chemical cleanings and manpower time, and extending RO membrane life.

By analyzing normalized data plant within the InSight platform, it is possible to anticipate problems and act to prevent damage to assets or even plant shutdown, with associated savings from this preventive action.