



3D TRASAR™ Technology for Membranes and System Assurance Center play critical role in preventing membrane replacement at brewery



BACKGROUND

One of the world's largest breweries, which produces some of the U.K.'s most popular beers, is committed to reducing its water usage. The Brewery operates Reverse Osmosis (RO) to help achieve this goal without compromising water quality.

The customer's plant has three Primary RO units and two Recovery RO units, which are monitored by Nalco Water's flagship 3D TRASAR™ Technology for Membranes and supported by their 24/7/365 System Assurance Center (SAC). The Recovery RO units use the reject from the Primary RO units to produce permeate for reuse.

The main reason the customer chose 3D TRASAR™ Technology was to change to acid dosage from de-alkalization prior to the RO units. This change significantly lowered water usage by reducing regeneration of the de-alkalization plant. Under this configuration, pH became one of the critical parameters for the customer's five RO units, thus tighter pH control was essential.

SITUATION

In October, Recovery RO unit #2 was loaded with new membranes and put into operation. The Nalco Water Sales Representative notified SAC that the RO system was up and running. As part of our service program, the SAC team helped revise the alarm limits and reset the baseline conditions for normalization.

Three months later, during the night, SAC began receiving alarms from the 3D TRASAR controllers on both Recovery RO units. After analyzing the 3D TRASAR System data, the SAC engineer troubleshooted the alarms and emailed the analysis to the sales representative. As this was a critical alarm, the

ENVIRONMENTAL IMPACT

Conserved 1000m³ of water.



WATER



ECONOMIC RESULTS

\$1,000 USD

Protected Membranes from being fouled due to scaling.



ASSETS

Saved \$21,702 USD worth of replacement membranes

eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.

engineer immediately contacted the sales representative by phone to communicate the potential risk of missed acid dosage and severe scaling of the membranes.

The Nalco Water sales representative escalated the communication to the plant's operations staff, advising them to stop both Recovery RO units. After further investigation, the sales representative learned that the acid pumps had stopped a day earlier due to a power failure and the reject valves were in the closed position.

Figure 1 shows the detailed system data from the 3D TRASAR System and response timeline when the issue was spotted.

Recovery RO unit#2

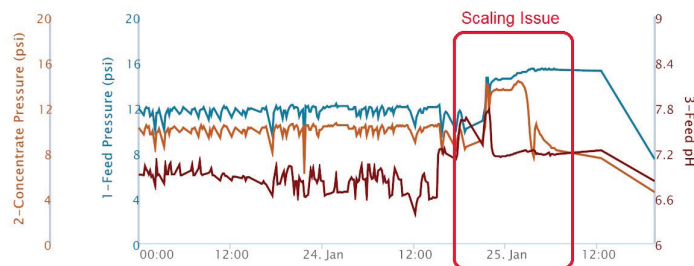


Figure 1 - 3D TRASAR System data from the event

SOLUTION

Nalco Water's regional Industry Technical Consultant (ITC) advised the sales representative to perform a strong acid wash, which, when acted upon, prevented severe scaling of the membranes. The timely alarm, email notification and phone call from SAC empowered the sales representative to turn off the Recovery RO units before severe damage occurred. The customer was able to get both Recovery RO units back into operation with very little down time. To avoid future events, the customer installed an Interlock to shut down the RO units when feedwater exceeds 7 pH.

Figure 2 shows the detailed system data from the 3D TRASAR System and the response timeline for resolution of the issue.

Recovery RO unit #2

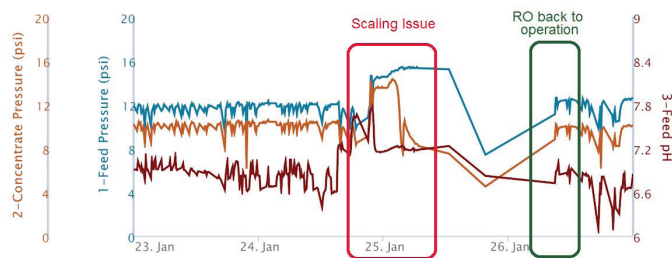


Figure 2 - Detailed data and the corresponding timeline for the response

ECONOMIC RESULTS

Nalco Water has helped this customer optimize water usage to achieve its operational goals. In addition, the best-in-class automation of 3D TRASAR Technology for Membranes, the timely actions from the System Assurance Center team, advice from the regional ITC and onsite actions taken by the Nalco Water Sales representative helped recover the membranes - saving the customer approximately US\$21,702.

Production was restored within 12 hours of the incident. This could have extended to 5-to-10 days if the membranes had to be replaced. This would have adversely increased fresh water usage by 1000m³/day, in addition to the cost of that water.

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