Improving Efficiency At BWRO Facilities With Pani Zed™

> “The Pani platform gives a ‘total system’ data view that is very helpful for our experts sorting through the operations on a regular basis.”
>
> **-Operator, BWRO Plant in Texas, USA**

Overview

Desalination plants that process brackish water using reverse osmosis (BWRO) have a lot to manage to maintain sustainable operations. With many factors to consider while running a plant, the process of capturing, aggregating, and interpreting the various data streams available needs to be quick and easy for operators.

Between pretreatment, assessing asset health and membrane performance, and maintaining quality permeate production levels, operational teams must juggle the competing priorities of costs, environmental impact, and energy consumption.

Capable of measuring everything from variable raw and product water quality to filter, pump, and valve performance to current membrane conditions, Pani Zed™ is a data-driven analytics platform supporting operational decisions from A to Zed, providing the tools and technology that enable operations teams to optimize their processes and operate sustainably.

Teams that use Pani Zed™ get a full operational picture, without the guesswork. Providing the relevant information quickly to operators means they can make the right decisions for the plant to maintain membrane health, reduce risks, and control consumption, keeping facilities on track and on target. The comprehensive platform offers an all-in-one solution to balance capital, environment, and energy factors, helping teams unlock peak plant performance.

Manage your membranes

Membranes play a critical role in the desalination process at BWRO facilities, but managing their health well requires a lot of operational time and experience. Scaling and fouling can lead to membrane replacements before they're due and increasing cleaning frequency does not necessarily result in longer-lasting membranes. Operators don't always have the knowledge required to truly understand how a membrane is performing, especially if they're spending hours analyzing and interpreting outdated data.

Adopting digital tools that can track membrane health is the first step in better membrane management. By establishing a baseline for performance, operators can quickly identify when performance is affected by a change in demand or in environmental factors like a storm or harmful algal bloom. They can then make adjustments to the system to avoid scaling or fouling.

The Pani Zed™ platform is able to both capture and display data regarding membrane health in an easy-to-use interface that helps operators understand exactly how the RO train is performing. This saves operators time in performing analysis, as well as in understanding which membranes need servicing or replacement to maintain optimal system health.

Reduce your risk

Additionally, using advances in technology such as artificial intelligence and machine learning, operational teams can do more than just maintain membrane health – they can actually plan ahead with predictive insights and ideal time-to-service windows.

Beyond simply data aggregation and assessment, the Pani Zed™ platform's advanced features provide prescriptive maintenance recommendations to help teams allocate resources effectively. Cleaning windows can be identified days to weeks in advance so that production capacity isn't affected by servicing procedures and membrane health is prioritized to avoid premature replacements and unnecessary cleanings, reducing consumable costs.

Using the performance baseline established, as well as historical data where available, Pani Zed™ is able to provide users with actions to take that improve plant efficiency and sustain asset health. Operators can make confident decisions around resource planning and maintenance, regardless of experience level, to ensure the facility is always performing at its best.

> "One fault detected by the Pani system that would probably have gone undetected otherwise was a flow sensor error on the softeners that would have caused excessive softener regeneration (the sensor was failing high) had we not been alerted to it by the Pani system."
>
> **-Operator, BWRO Plant in Texas, USA**

Control your consumption

With readily available data at the fingertips of operational teams, additional marginal improvements can be made when considering chemical and energy consumption to further drive down operational costs at BWRO facilities.

Saving on both chemical and power consumption, plants can reduce their greenhouse gas emissions and increase their resource recovery where possible. Having the ability to consistently measure usage can also ensure that teams are better able to prioritize reductions, lowering the plant's operational costs and overall environmental impact.

Decision-making support for BWRO teams

With the ability to configure the platform for each unique plant, Pani Zed™ is the ideal tool to drive effective action at BWRO facilities. From simple features that capture and display plant data to more advanced features that assess and analyze that data to provide tailored recommendations, value from the platform can be delivered to users in a matter of weeks.

Reduce operational costs and risks and emissions without the guesswork, and without compromise to resource recovery or water quality.

Explore plans or reach out to talk to our team