THE PI SYSTEM™ HELPS SABESP MANAGE AND OPERATE DRINKING WATER SUPPLY IN GREATER SÃO PAULO AREA

In 2015, the São Paulo region of Brazil faced a massive water crisis that left many of the area’s largest reservoirs nearly bone dry. Sabesp, a Brazilian water and waste management company owned by the state of São Paulo, manages the water distribution and sewage collection and treatment for over half the cities in the state. During the crisis, customers overwhelmed Sabesp's call centers, demanding information about water supply and water levels in the reservoirs. The volume of customer inquiries crowded out crucial communications about operations as Sabesp scrambled to maintain service. Following the crisis, Sabesp partnered with Stefanini, a Brazilian data processing and consulting firm, to develop a stable and reliable environment using the PI System to better manage their operations. “We make daily efforts to minimize water shortage. Because Sabesp understands that regularity in water supply increases people’s life quality and health,” said Silvana Franco, Manager of Supply Control at Sabesp, during PI World San Francisco 2019.

Guaranteeing a reliable supply of drinking water in São Paulo’s metropolitan region is a crucial but challenging task for Sabesp, one of the largest sanitation companies in the world. But with great size comes great responsibility. Irregular terrain, ranging from 740 to 1100 meters above sea level, combined with a high-density population areas requires a large and complex system of pipes and pump stations to transport water to nearly 28 million customers. Further complicating matters, the São Paulo region has very limited water resources, demanding extreme efficiency of operations. Sabesp set a goal to reach 100% reliability in its water supply by 2022. To achieve this goal in such a high-stakes environment, the company needed a new system that would provide all the information needed to run their operations efficiently. Sabesp had several clear requirements for their new system:

• Ability to create an integrated analysis of the sanitation cycle.

• A user-friendly interface, readable by everyone in the company, not just engineers.

CHALLENGE

Increase operational efficiency to provide 100% reliability in water supply by 2022.

SOLUTION

PI Vision provides intuitive visualization of critical data and notifications alert engineers to potential problems before they arise.

BENEFIT

From 2015 to 2017, water shortages decreased from 14% to 5%; customer satisfaction increased from 67% to 84%.
PI Vision provides intuitive dashboards of the sanitation cycle across all of Sabesp’s enterprise.

- Fast integration of information from others business processes for rapid decision-making.
- Online monitoring of indicators affecting customers.

Sabesp already had a lot of data coming in from its remote equipment. With help from Stefanini, Sabesp set up a PI Interface for OPC DA to collect this data from their SCADA systems and move it to the PI System. Sabesp then used Asset Framework (AF), the contextualization layer of the PI Server, to organize its assets, taking advantage of easy-to-use templates to make data modeling run more smoothly. Now, no matter where they are, engineers and managers throughout the company can easily access information about the status of pipes, pump stations, and reservoirs using a VPN to access PI Vision displays online on any device. PI Vision also allows users to create dashboards to access general system maps as well as displays of different subsystems and pump stations. Users can drag and drop assets to create quick, intuitive web-based displays. These displays automatically provide important information about key assets, such as the current pressure or unit number of a particular pump.

Due to the time sensitive nature of running a water management company, Sabesp wanted their new system to be equipped with alarms and notifications to alert engineers about potentially critical events. Event Frames and PI Notifications features of the PI System now automatically notify Sabesp of water shortage events. Alarms and reports also help engineers and maintenance teams predict problems and take preventative action. “With the implementation [of the PI System], we can now do more together. We can act in parallel. It was very important for us to have this benefit,” Franco said.

The results of its PI System implementation went beyond what Sabesp could have expected. Corrective maintenance decreased from 11% in 2015 to less than 7% in 2017. Sabesp’s water loss index, measured in terms of liters per connection per day, decreased from 348 to 337 from 2017 to 2018, which Franco explained was “a very big result for us.”

But perhaps most importantly of all, claims from customers about water shortages fell from 14% in 2015 to 5% in 2017 and, according to Sabesp’s satisfaction survey, customer satisfaction increased from 67% in 2015 to 84% in 2017. Sabesp also used information from the PI System to create a customer-facing app so that the public can stay informed about water levels and availability. As a result, Sabesp’s public image has improved greatly: in 2018, Sabesp was named second most reliable company in São Paulo by the Brazilian market research company IBOPE. “We know implementing the PI System was a big part of this result,” Franco said.

For more about Sabesp and the PI System, watch the full presentation here.