ELIPSE'S SYSTEMS USED FOR REDUCING WATER LOSS AND INCREASING ENERGETIC EFFICIENCY AT ÁGUAS GUARIROBA

Elipse E3 and Elipse Mobile are deployed by Águas Guariroba Distribution Company to improve water distribution and waste water treatment in Campo Grande, Midwest Brazil

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Needs

From the very beginning of their concession contract, Águas Guariroba has been investing in remote management systems that use Elipse E3. Given the water supply crisis scenario found in Brazil nowadays, this technology is of great help to distribution companies searching for more efficient ways of using the country's natural resources.

With its screens and commands, the technology allows the company to remotely control all processes related to water collection, treatment, and distribution, as well as to waste water treatment, in Campo Grande, state of Mato Grosso do Sul, in Midwest Brazil. To reinforce this control, Águas Guariroba adopted, in August 2014, Elipse Mobile, a software solution that allows accessing data from E3 via tablet or smartphone.

Figure 1. A controller monitors the reservoirs' water level via Elipse Mobile from a smartphone

Solution

Before Elipse E3 had been implemented, the company was controlled locally by a 12-member group per shift. Now, via a single Operational Control Center (OCC), installed in the company's headquarters, in Campo Grande, only one person is required for monitoring a grand total of two superficial collection sites (Guariroba and Lageado), 150 underground ones (wells), 104 reservoirs, and other operational units.

Figure 2. Águas Guariroba's Operational Control Center

To automate water and waste water collection and their distribution processes, Águas Guariroba uses four different systems, all of which employ Elipse E3. At the Guariroba River abstraction point, a source which represents 35% of all water distributed to Campo Grande's population, the software allows controlling the pumps' current statuses and monitoring their flow, pressure, current, tension, and capacity.

Via AGIMS (Águas Guariroba Integrated Monitoring System), developed by the company with Elipse E3, the operators can monitor the treatment and control the collection and distribution of Lageado River's water, as well as the underground collections, treated and untreated water pump stations, pump frequency, network pressure, and other operational data.

Figure 3. AGIMS's main screen

Figure 4. Dom Antônio supply system's screen

Also with Elipse E3, new tools (ElipseX libraries) were developed to automate control actions, which standardize the operation and increase operational efficiency. Power consumption is another variable monitored by AGIMS. In addition to telemetry, Águas Guariroba's controllers

use other systems to help visualize and analyze the historic data collected by E3 via web. One of these is Parameterization, which performs the automatic statistical analysis of the operational patterns compared to the operation in real time.

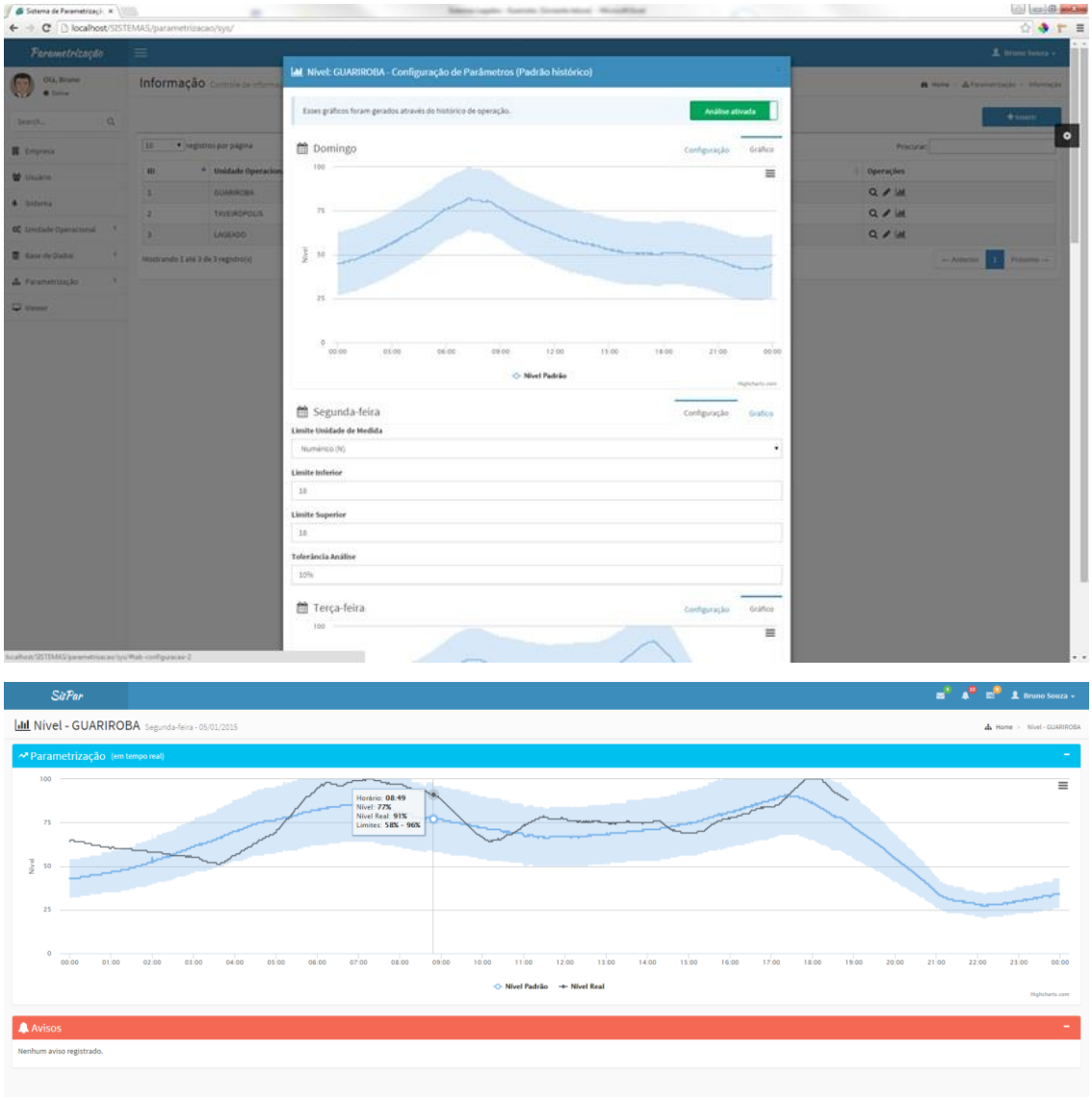

Figure 5. Parameterizations system

Another system being deployed is OCC's website, a portal where the data collected by E3 and recorded in a database is displayed as reports, charts, and graphs. The Anomalies system, on the other hand, is used for controlling any abnormalities found in the operation, so that people in all shifts are aware of them, and therefore can solve them.

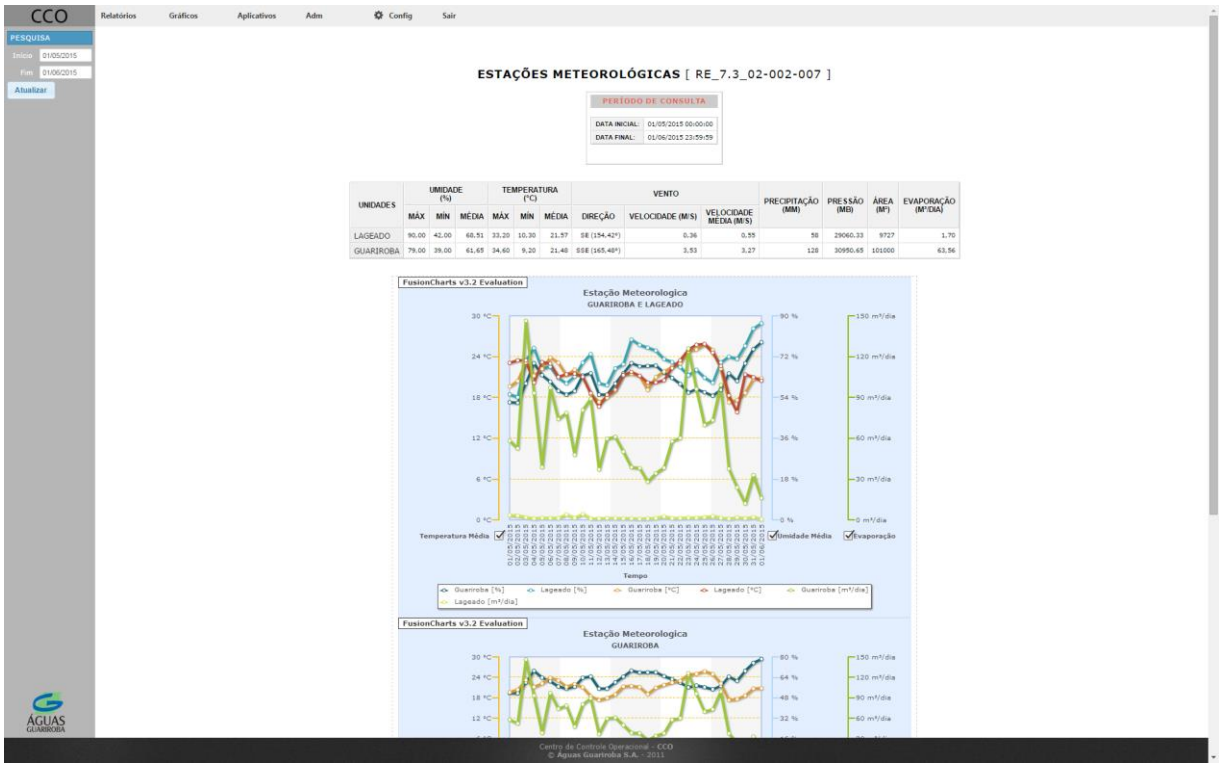

Figure 6. OCC's website

Águas Guariroba is the first sanitation company in Brazil to use a system developed by Israeli company TaKaDu to monitor and analyze data distribution efficiency via data collected by Elipse E3. This technology detects, in real time, any non-conformity in the supply network: low or high water pressure, possible leaks, etc.

Benefits

According to Karen de Souza Pereira Cortez, Águas Guariroba's systems analyst, one of the greatest benefits brought by the new software is being able to control water distribution and power consumption remotely.

"There is no doubt for us that mixing automation and the resources available with Elipse E3 and Elipse Mobile is one of the main contributors for reducing losses and increasing the company's power efficiency," said Cortez.

Among the other main benefits brought along by Elipse's solution are:

- Water collection, treatment, and distribution systems are controlled remotely via E3's screens and commands;
- Waste water collection and treatment systems are controlled remotely via E3's screens and commands;

- Specific applications and tools for automating advanced actions can be easily developed, thus increasing operational efficiency;
- High-quality help tools are provided by Elipse Software;
- Customer service is quick and efficient;
- E3 screens are accessible via smartphone or tablet with Elipse Mobile; this decentralizes the application's monitoring, which is no longer bound to the OCC;
- Software is easy to implement and maintain;
- E3 can be integrated to other web systems to facilitate visualizing and analyzing the information generated by the software;
- The system is reliable;
- Data generated by Elipse E3 and Elipse Mobile require user and password login to be able to be controlled.