



# STEBATEC®

Measure - Control - Regulate

## Automatic coarse screen cleans turbine inflow of the Serrière river in Neuchâtel

- Constant flow of 1700 l/s through the screen to the turbine
- Level measurements for operation and monitoring
- Data exchange with turbine control
- Screen and main gate control by AQUAbella online



The new plant at a glance (starting from left): Overflow gate, lighting, screen cleaning machine with screen array, flushing conduit and concrete tub, main gate and concrete booths for hydraulic unit and control cabinet.

### Starting situation

Viteos SA is a major water and power supplier in the canton of Neuchâtel, who also operates own hydropower plants. The short course of the Serrière River in Neuchâtel, which receives water from an extensive karstic catchment area, has been generating electricity since 1939. The plant was modernized in 1978 and rebuilt completely

in 2016. Part of the project was the modernization and simplification of the old screen system which Viteos SA requested STEBATEC to do. The order also included level measurements for controlling the screen cleaning machine and monitoring the plant, an alarm system and a web-based control of the main gate in the turbine inflow.

## Requirement

- On-time installation of a simple supporting automation system
- Main valve with AQUAbella for control via any browser
- Reliable and upgradable alarm system
- Long-life mechanical equipment, durability of over 25 years
- Standard-conforming electrical equipment with plant lighting system

## Implementation

Together with an engineering office, Viteos SA contracted the required construction work. Particularly the access, the roof of the turbine inflow and the bridge to the overflow gate needed reconstruction. The old corroded screen was removed beforehand. Then the new screen array was installed together with the supplier. Following that, the screen cleaning machine with a flushing conduit was installed. A pump pumps the floating trash, which the cleaning machine lifts into the conduit with the river water, into a concrete basin. The water returns to the turbine

inflow through a small bottom screen whereas the trash dries up in the basin, from where it is removed for disposal. At the end of the process, the cleaning comb itself is also cleaned easily through openings in the tube. Besides, the cleaning machine is running smoothly and produces very little noise.

The hydraulic unit, which operates the cleaning machine, and the electrical control cabinet are securely installed in concrete booths. The two level meters upstream and downstream the screen are ultrasonic systems, a solution Viteos SA uses in all its plants.



The floating trash, which the cleaning machine lifts into the flushing conduit, is flushed into the concrete basin with bottom screen.



Hydraulic unit and control cabinet are securely installed in concrete booths.

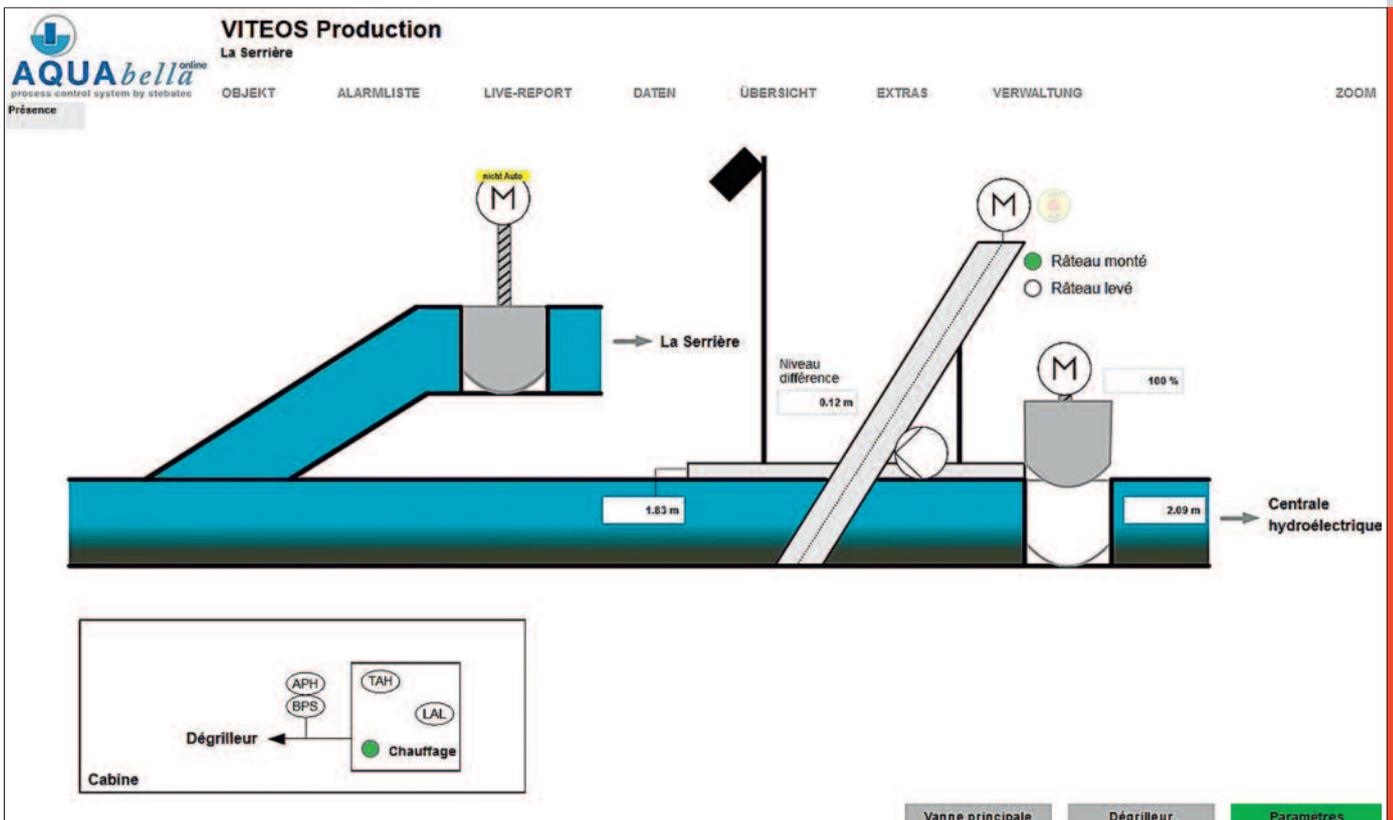
Captions



Situation before the installation of the new screen. The hoses in the picture evacuate water.



One of the two concrete booths is moved by an excavator.



The main gate and the screen cleaning machine can be controlled online by the web-based AQUAbella process control system.



The turbine inflow with the old screen before ...

... and the situation after the installation of the new equipment.