

### Who is SISLtech?

SISLtech, founded in 2009, specializes in advanced control solution design and implementation for WWTPs. Market leader whose client list includes heading international utility companies, SISLtech maintains a global presence implementing the **atl<sup>©</sup>** advanced control solution in more than 100 WWTPs worldwide.

### Summary

#### La Farfana WWTP (Chile)

- Large plant
- Plug flow reactor
- Carbon requirements
- Diffused aeration



#### Challenge

An increase of the inflow (around 50,000 m<sup>3</sup>/d) required a tool to control **effluent quality in real time** and **minimise the aeration costs**.



#### Results

- **100%** quality requirements
- **18 %** reduction of the aeration system energy consumption

### Plant characteristics



Biological reactor tanks of La Farfana WWTP

- **Flow:** 760,000 m<sup>3</sup>/d
- **Biological reactor:**
  - Plug-flow configuration
  - 16 units
- **Aeration system:**
  - 6 turbo blowers
  - 1,600 kW per turbo blower



Settlement tanks of La Farfana WWTP

- **Aeration strategy before atl<sup>©</sup> platform implementation:**  
Aeration strategy based on pressure and oxygen measurements
- **Effluent discharge consent**
  - Turbidity < 15 NTU
  - TSS < 35 mg/L
  - COD < 125 mgO<sub>2</sub>/L
  - BOD5 < 35 mgO<sub>2</sub>/L

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## Implemented technical solution

### Instrumentation

Installation of a TOC (Total Organic Carbon) analyser and turbidity sensors.

### Carbon removal advanced control

The **atl** platform has been implemented with two control modules in La Farfana WWTP:

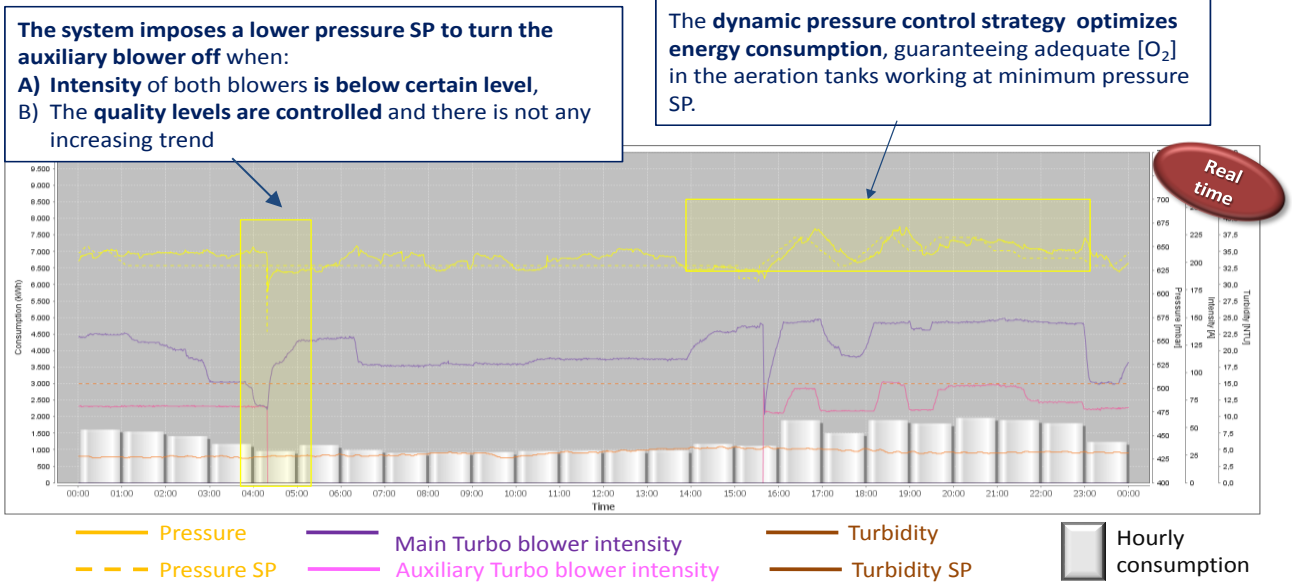
- Intelligent air production distribution control **sica**

**sica** is a module that controls the air supply system through the pressure levels in the main air pipe. As a consequence, it regulates the degrees the valve opens, to guarantee the dissolved oxygen concentration in the aeration tanks. A dynamic pressure strategy is applied to ensure better system efficiency.

- Carbon removal advanced control **c&η**

**c&η** is a module based on effluent turbidity, which provides the most appropriate oxygen set-point to ensure the treated water quality, with minimum energy consumption.

### How does it work?



## Results and benefits

- The **aeration supply** has been adjusted to the influent load, and therefore **optimised**.
- The plant **complies with the river basin discharge requirements** as a result of **real-time control** of turbidity level.

**100 %**  
Treated water quality guaranteed

**18 %**  
Reduction in aeration energy consumption (reduction of 15,000 kWh/d)

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