

Optimization of wastewater treatment with state-of-the-art FUCHS OxyStar® aerators in Peru

The WWTP El Cortijo, owned by the company Drinking Water and Sewage Service EPS SEDALIB S.A. Trujillo, Peru, is one of five plants that currently exist in the city and treats wastewater. The effluent of this plant is used for industrial agricultural irrigation like sugarcane crops, trees, and forests. In addition, one of the main treatment goals for this plant is to ensure that the wastewater effluent is suitable for disposal, and not directly discharged into the fragile marine waterfront.

The plant consists of 5 lagoons treatment system operating in parallel. 2 aerated lagoons N°1-N°2 and 3 facultative lagoons F1, F2, F3 consecutively.

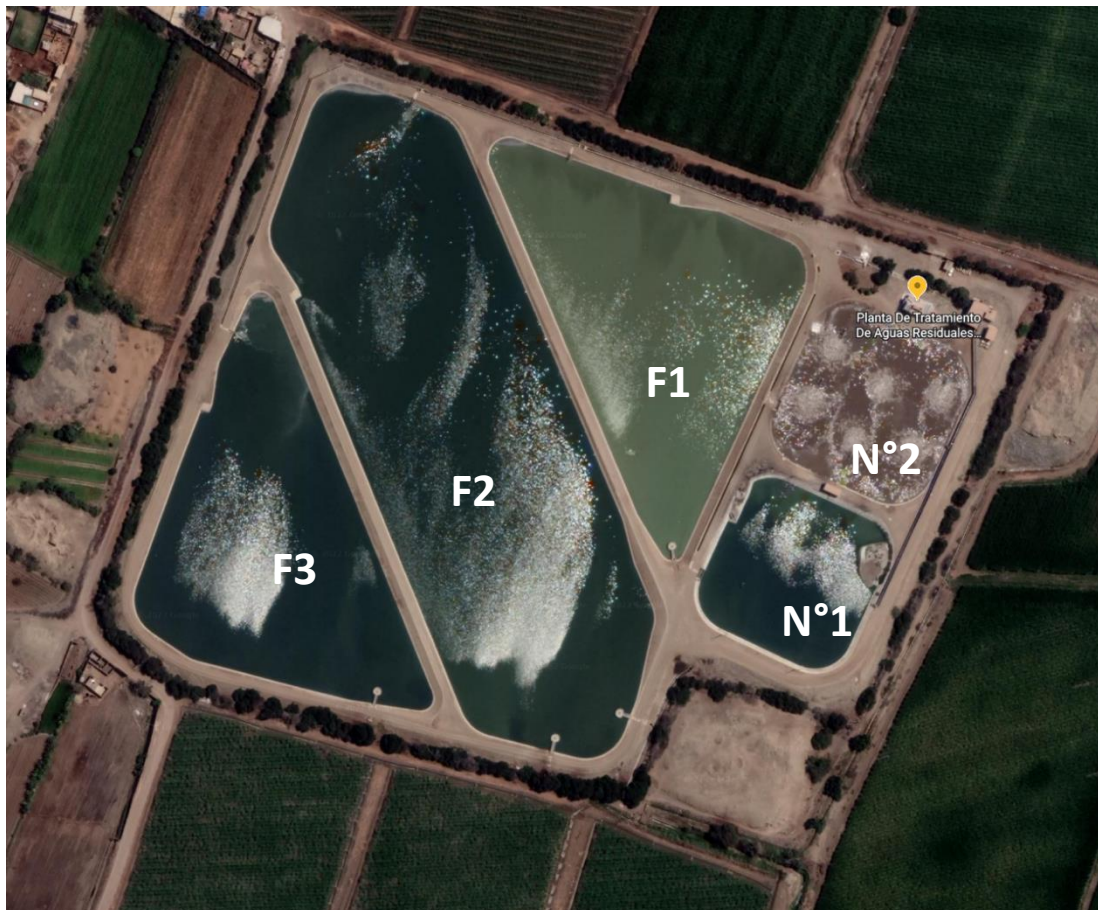


Fig. 1 WWTP El Cortijo: location of aerated and facultative lagoon systems

After several years of operation, the plant worked on a very limited treatment capacity with the lagoon N°1 in service, treating a flow of barely 50-60 lps (5,184 m³/d), which corresponded to only 30% of the design flow.

In order to double the incoming wastewater treatment throughput, FUCHS Enprotec GmbH was selected in 2021 to supply and replace the existing obsolete aeration equipment (Triton with blowers) of the aerated lagoon No. 2 with modern self-aspirating surface aerators OxyStar® FUCHS. This way, the plant substantially increased the treatment capacity and was able to guarantee an adequate treatment for a flow rate of approx. 100 L/s, with a concentration of 350 mg BOD₅/L. As a result, the plant was able to improve the quality of the effluent and therefore, meet the environmental standards and comply with the strict regulations that control the Maximum Permissible Limits allowed for effluents of WWTPs of this type.

Technical Information

Districts source of wastewater	Florencia Mora + La Esperanza sur, Trujillo
Treatment system	2 aerated lagoons N°1 and N°2 (suspended activated sludge)
	3 facultative lagoons F1, F2, F3
Current treatment capacity	8,640 m³/d
Concentration BOD₅	350 mg BOD ₅ /l
Aerators OxyStar® OS30	6 (22 kW each)

Currently, the two aerated lagoons N°1 and N°2 have been fully renovated and the lagoon N°2 is equipped with 6 OxyStar® OS30 aerators. To the date, the equipment is in perfect condition of operation and performance.

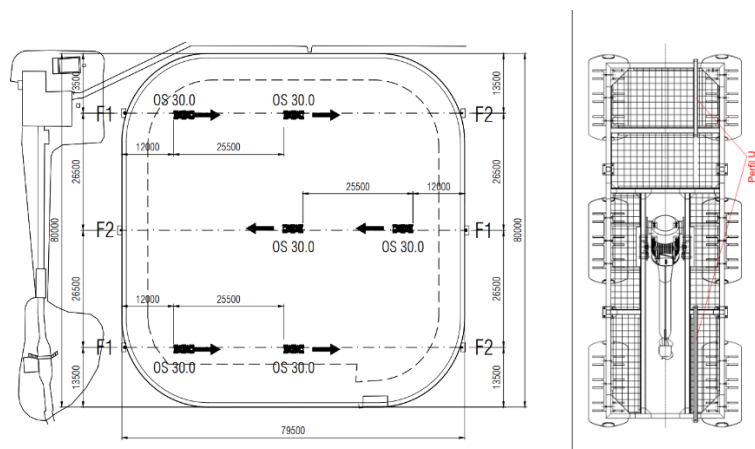


Fig. 2 WWTP El Cortijo: Aeration lagoon N°2 with aerators OxyStar® OS30

The aerators FUCHS OxyStar® were selected because, in addition to combining excellent aeration and mixing with a robust design, they offer easy installation. These are very valuable aspects when it comes to retrofits. Thanks to the fact that the plant decided to install our recommended layout and number of aerators, the lagoon is at an optimal treatment condition, there is a uniform distribution of power and both, the required mixing and oxygenation levels of the wastewater are as expected.



Fig. 3 WWTP El Cortijo: Aeration Lagoon N°2 layout with OxyStar® OS30 aerators in operation in 2022

In 2022, FUCHS Enprotec GmbH visited the treatment plant and had the opportunity to confirm the great improvement that has been for the lagoon and treatment the installation of the OxyStar® aerators. Furthermore, according to the operator, a great advantage of the FUCHS OxyStar aerators is that after more than a year in operation, no maintenance has been necessary and the condition of the rotor and equipment is in optimal condition (despite the quality of the influent). With no submerged rotating parts, the motor bearings require almost no maintenance.



Fig. 4 WWTP El Cortijo: Aeration Lagoon N°2 layout with OxyStar® OS30 aerators in operation in 2022

Finally, after the success of this initial installation, the customer is also interested in future expansions and revamps with FUCHS OxyStar® aerators, not only for the remaining lagoons at this plant, but also for another nearby wastewater treatment plant of paramount importance for the city of Trujillo.

FUCHS OxyStar aerators are available in various sizes. They can be bridge, wall or float mounted. Thanks to their robust design, OxyStar® aerators are very reliable and virtually maintenance-free.

Advantages of FUCHS OxyStar® Aerators at a glance

- Efficient aeration
- High mixing and circulation capability and flexibility
- Outstanding quality of material and production
- Almost maintenance free – no lubricating or greasing required
- No underwater parts to maintain
- Versatile and simple modes of installation
- Handling and installation due to low weight
- No aerosols or misting
- Negligible noise level

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