

Optimising operations

Pond treatment plant, Neidenbach (Malberg), Germany



Verbandsgemeindewerke
Bitburger Land, Teichkläranlage
Neidenbach (Malberg)

Operation

1 OLOID Type 400 in aerated
pond with 2000 m³

Period

Since 08/14/2015

Success

More stable discharge values

Saving of 40% of energy for
aeration through reduced
operating time of the jet
aerators

Goal of the OLOID operation

Optimising operations: Improvement of the agitation, uniform distribution of oxygen, reduction of operating time of the pre-existing aeration with at least unchanged efficiency of degradation

Description of the plant

Communal pond treatment plant with submerged rotary body, design capacity: 1700 PE (population equivalent), predominantly domestic wastewater

Process design: Screening system -> aerated pond -> submerged rotary body-> secondary sedimentation -> tertiary treatment pond

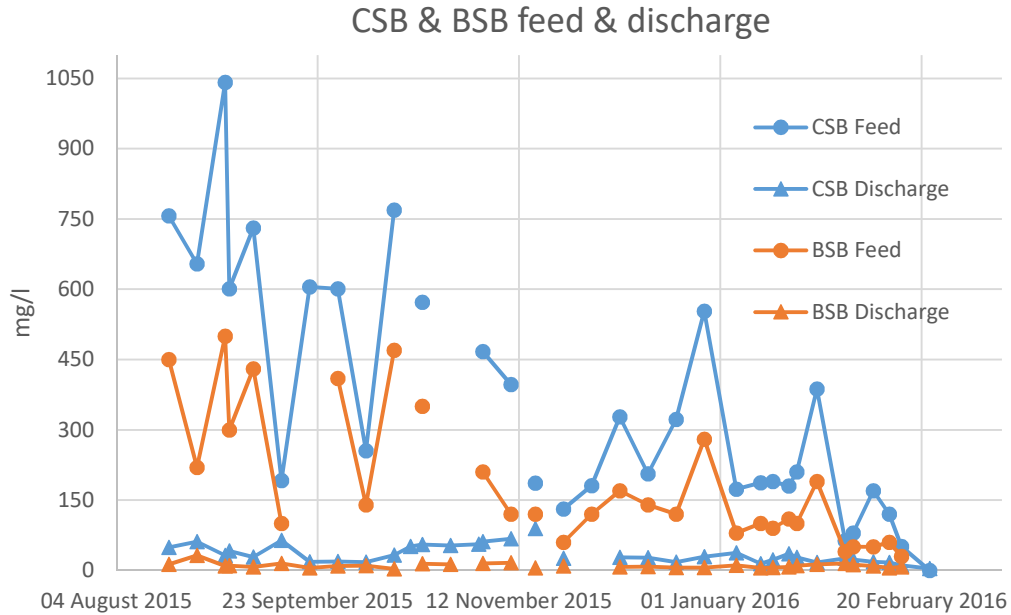
Pond aeration: aeration with 3 jet aerators (5.5 kW und 2 x 2.2 kW) mounted on floaters

OLOID-positioning: in the first third of the pond in before the large jet aerator

The OLOID current generates a heart-shaped current in the pond, which is intensified by the jet aerators in the aerated periods. The entire pond is kept in motion even when the jet aerators are switched off.

Results

- The circulation in the entire pond is improved through the operation of the OLOID. The entire body of water is stirred as far as the corners leaving no death zones.
- Because the jet aerators are no longer necessary for the circulation but only for the aeration with oxygen necessary for the biological degradation, the operation time can be reduced to 7.5 h/day, therefore cutting down 40% of the previous energy costs for the aerated pond.
- The oxygen which is imported through the jet aerators is uniformly distributed in the entire pond. The O₂-concentration for operation is above 1.5 mg O₂/l in the entire pond, even in regions with poor currents.



In the figure, the inlet and outlet values (COD and BOD) are presented for the pond treatment plant in the testing phase with the OLOID Type 400 with continuous reduction of aerator running times. Even at higher feed concentrations at the start of the test, the discharge values could be reliably maintained. Highly recommended is controlling the aerator running times via the oxygen content by online measurement technology as a more reliable measurement is ensured by the continuous circulation through the OLOID and thus more effective ventilation may be targeted.