WWTP Kneese, Germany

Conversion to efficient pure oxygen aeration during operation!

"Efficient pure oxygen aeration means using the pressure of the oxygen gas – the most economical solution for us: fine bubble aeration panels!"
Ralf Schefler, Wasser und Abwasser GmbH Boddenland

The company *Wasser und Abwasser GmbH Boddenland* runs the single-line WWTP Kneese, which has a capacity of 29,000 PE. The biological wastewater treatment is performed in a tank volume of 6,250 m³ with intermittent denitrification and simultaneous aerobic sludge stabilisation. Highly organically loaded wastewater of a distillery is discharged into the WWTP Kneese. Therefore peak load situations are common. To handle these high carbon loads a pure oxygen aeration injector was installed additionally to a fine bubble aeration system.

Fig. 1: WWTP Kneese during and after mounting of the MESSNER® Aeration Panels in lifting frames

Initial situation:

The pure oxygen aeration should be switched to a more efficient system, which does not need any extra energy supply. The arguments for choosing fine bubble MESSNER® Aeration Panels were their high economic efficiency and positive operating experience from WWTP Barth. There MESSNER® Aeration Panels have been used for pure oxygen aeration since 2015.

Implementation:

The fact, that the aeration tank could not be emptied was challenging. Conversion to pure oxygen aeration with MESSNER® Aeration Panels had to be carried out under operating conditions. In May 2017 RUDOLF MESSNER UMWELTTECHNIK AG supplied high efficient MESSNER® Aeration Panels in lifting frames, which were installed in the aeration tank under operation. At the same time the oxygen injector was decommissioned and dismounted.

Result / Benefit:

Operation safety without additional energy supply for pure oxygen aeration has been gained by using MESSNER® Aeration Panels in lifting frames. During peak load situations the pure oxygen aeration is switched on. In that case the high oxygen demand is covered fast and sovereign, so that the effluent values are safely met any time. While the submersible motor pump of the injector was requiring up to 20 kW per hour, the pure oxygen aeration with MESSNER® Aeration Panels is working without any energy consumption now.

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