

SUPPLEMENTAL AERATION NEARLY ELIMINATES FILAMENTOUS SLUDGE BULKING

CASE STUDY

OVERVIEW

The Dubai Investments Park Wastewater Treatment plant in the United Arab Emirates faced challenges in their oxidation ditch due to filamentous sludge bulking, resulting in poor sludge settling in the secondary clarifier.

CHALLENGES

The oxidation ditch is treating an average of 2.64 MGD (10,000 m³/day) of wastewater, composed of 70% percent municipal and 30% percent industrial waste streams. High organic loads, summer heat, and low dissolved oxygen levels were likely the culprit of the filamentous sludge bulking.

SOLUTION

Water Matrix Technologies FZE of Dubai partnered with Aeration Industries International to provide a sludge bulking solution by providing two 30hp (22kW) Aire-O₂ Triton® process aerators/mixers to assist the existing supplemental high-speed surface aerators.

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RESULTS

The Aire-O₂ Tritons were able to drive additional oxygen to the lower levels of the oxidation ditch, depriving the filamentous bacteria of low oxygen concentrations and nearly eliminating the filamentous sludge bulking. This also resulted in a high suspension of solids throughout the tank, temperature de-stratification, and greatly increased dissolved oxygen.

IMPACT

Despite summertime temperatures as high as 36°C, the plant has been treating an influent BOD of 500mg/l down to <10mg/l and influent ammonia levels of 30mg/l down to <1.0mg/l. The plant's total capacity was expanded to 8.19 MGD (31,000 m³/day) with plans to expand to 21.1 MGD (80,000 m³/day) over the next thirty years. The completed project will serve more than 37.1 acres (150,000m²) of municipal and industrial residents. The water conservation features of the plant include effluent reuse for irrigation and district cooling makeup water. The treated water can be used to irrigate approximately 150,000m² of dry land. With Dubai's heat, water reuse is crucial.

SOLUTIONS PROVIDER

Questions on how we can help solve challenges you're facing? Contact us at [+1-952-448-6789](tel:+1-952-448-6789) for more information. Together, we can create innovative solutions for your wastewater challenges.