



CASE STUDY:

Turnkey solution – Poultry Wastewater



Headworks Brings Turnkey Solution for Poultry wastewater in Riyadh, Saudi Arabia

Background

With more than 50 years in the food and the agriculture business, Tanmiah Food Group (TFG) by Al Dabbagh Group Holding Co. has earned and retained the trust of consumers and business partners alike by observing the best production, quality, hygiene and customer service standards.

Agricultural Development Company Ltd. (ADC) is a premier manufacturer of poultry, red-meat and deli-meat products. ADC became one of the largest producers of fresh and frozen chicken in the Middle East, focusing on chilled chicken as a primary product and selling it under the brand name Tanmiah. With the number of birds slaughtered per day increasing from 60,000 to 100,000, the existing conventional activated sludge effluent treatment plant designed to handle 700 m³/d needed expansion to 1,200 m³/d.

Headworks was awarded the contract to provide a complete turnkey solution to almost double the capacity of existing plant with minimal civil works and within the existing footprint.

Customer: Agriculture Development Company (Tanmiah)

Industry: Poultry
Capacity: 100,000 Birds per day (1200 m³/d)
Location: Riyadh, Saudi Arabia



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Process

One of the key challenges at the plant was to install a solution to upgrade the existing plant while keeping the plant running all the time as the plant could not be shut down for long periods. The changeover to new system was done during weekends. The plant was upgraded to provide treated water suitable for irrigation.

Three existing surface aerators in the activated sludge reactor were replaced by two larger capacity aerators for providing aeration to maintain MLSS. Headworks provided a new equalization tank with aeration blowers for equalizing the flow and load prior to the biological treatment. A pH correction dosing system is provided upstream of the activated sludge reactor to maintain a pH of 6-8 all times. Headworks supplied DAFs to pretreat wastewater prior to biological process and to separate water from the treated effluent.

Results

The upgraded treatment plant treats 1,200 m³/day with an influent BOD 2750 mg/l and COD 5000 mg/l. The plant achieves BOD reduction to <40 mg/l, COD to <200 mg/l and TSS to <40 mg/l outlet respectively, thus producing effluent suitable for reuse and irrigation applications.

Along with the complete plant process and mechanical design, Headworks supplied all core components of the treatment plant, including: pre and post DAF, belt press, control panels, air blowers, chlorine disinfection, submersible pumps, instruments and aeration grids.

With the installation of a belt press all the excess sludge produced is dewatered to sludge cake at 20% DS, which has resulted in significantly reducing the number of tankers transporting waste sludge a day.



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