



MUNICIPAL SBR PROCESS

Upgrade from surface aeration

Electra Greentech, a large service provider of wastewater treatment solutions in the Israeli market, operates the WWTP of Arad city in the south of Israel. The plant treats more than 2.5 million m³ of municipal wastewater annually with an average daily flow rate of 7,000 m³/day in an SBR process. The existing aeration systems in the SBR lagoons comprised of 6 floating aspirator units, combining mechanical mixers with coarse bubble diffusers, designed to deliver oxygen of 420 kg/hr under standard conditions. Each unit included a mixer with the capacity of 7.5 kW and a regenerative blower of 22 kW, but the system did not achieve the expected results according to the design specifications.

Challenge

To improve the dissolved oxygen concentration in the SBR, to improve the nitrogen removal and the settling characteristics of the MLSS, and to reduce the O&M complications and costs.

Solution

Six of Mapal's Floating Fine Bubble Aeration (FFBA™) units were installed in each of the two reactors, replacing the original aeration system. Mapal's units connected to the existing blowers on site, reducing the customer's capital expenditure.

The units were designed to suit the fluctuating water level so that the diffusers remain above the lagoon floor, eliminating any possibility of damaging the lining.

In Phase 1 the FFBA™ units were installed in only one reactor, in order to allow an accurate comparison between Mapal's units and the existing system, in equal conditions.

Results

Mapal's aeration system was installed within four days, without stopping the treatment process or draining the reactor. Following the above, began a comparative experiment between both systems. Samples were taken at the entrance and exit of each



SBR lagoon, and the incoming flow rate and daily energy consumption of each lagoon were measured. Mapal's technology improved the effluent quality and decreased the energy consumption. In light of the substantial improvement in performance where Mapal's system was installed, the customer decided to complete the upgrade and replace the old system in the second reactor with Mapal's units.