

## K<sub>L</sub>a Slot Injector™ Aeration System Expands The Capacity Of An SBR At A Landfill Leachate Treatment Facility

### **The Challenge**

A landfill had an existing single basin SBR plant to process the leachate which is notable for its high nitrogen load. The original system was installed with a fine pore diffuser aeration system and due to the chemical/biological composition of the mixed liquor it was prone to diffuser fouling and premature membrane failure. Over time this was detrimental to the biological process due to reduced oxygen transfer capacity of the diffusers, as well as an increase in energy usage as a result of the higher blower pressure. After several years of operation there came the need to add more treatment capacity so a second SBR tank was planned for. During the design phase it was decided to use a more robust aeration system for the new tank as well as to replace the fine pore diffuser aeration system in the existing SBR tank. The K<sub>L</sub>a Systems Slot Injector™ Aeration System was selected due to its superior aeration efficiency in complex wastewaters, flexible design features, and its proven long term, trouble free operation.



Slot Injector™ Aeration System

## The Solution

The new SBR plant consisted of two 750,000 gallon tanks, with a total of four Model KSI-BJA-62 slot injector aerators installed. Each SBR aeration system is designed for an oxygen transfer requirement of 36,000 lb/d while running in both anoxic and aerobic modes. The in-tank components are highly corrosion resistant and consist of an FRP piping system, polypropylene injectors, and a stainless steel support system. Each aerator receives motive liquid flow from a 100 Hp dry pit, centrifugal pump. The pumps are on variable frequency drives so they can be turned up or down for improved process control and energy savings throughout the SBR cycle. Compared to the existing fine pore diffuser system, the Slot Injector system was able to efficiently increase the oxygen transfer capacity of the SBR process by 45% while using the existing blower system. The slot injector system also included an air lift type back-flush system which allows the plant operators to clean the injectors without the need to dewater or take the basins out of service. The plant was successfully commissioned in September 2012.



Slot Injector System - Surface Aeration Pattern