



MUNICIPAL WWTP STUDY

SDOX® Allows for Drastic Change in Single-Celled Lagoon

IFM was approached by a long-time client with issues regarding their single-celled lagoon. The current wastewater treatment plant (WWTP) had extremely high carbonaceous biochemical oxygen demand (CBOD) levels exceeding 200 mg/L. With this specific facility's biannual effluent discharge regulation, a solution needed to be obtained to effectively oxygenate the water and reduce CBOD concentration to the EPA-recommended level of 25 mg/L.

A construction plan was created for a portable trailer which utilized an SDOX® unit. This unit allows for a large body of water to become oxygenated through the use of pure O₂. During the operation of this equipment, a side stream of wastewater is supersaturated with oxygen and is readily injected back into the main body of water. This highly-pressurized, highly-oxygenated water stream facilitates the diffusion of pure oxygen throughout the main bulk of the body of water before the oxygen supply is able to escape. Normally, such high concentration of gas within a water solution would not be possible under standard atmospheric conditions, however, the dispersion of the carrier stream quickly becomes diluted to a point below (or at) saturation.

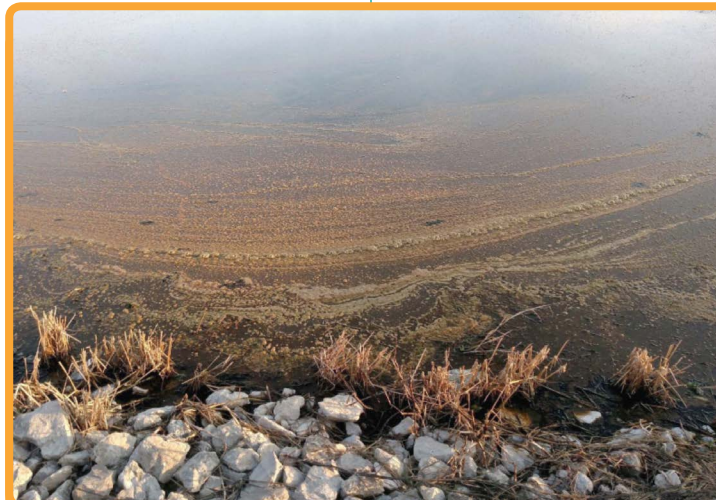
In stagnant lagoons, without the use of aerators, anaerobic conditions can quickly arise. When a water source becomes anaerobic, hydrogen sulfide gas becomes a large byproduct of bacterial degradation. Not only is this gas toxic, it also contains the ability to corrode concrete and steel structures. Hydrogen sulfide gas also creates a strong odor that will be pungent coming off of the water source. With the SDOX® unit, aerobic

conditions can be easily restored and odors greatly reduced.

As a result of the biannual discharge rate of this particular WWTP, the natural circulation of oxygenated water and bacterial digestion was carried out for months on end. CBOD levels were successfully lowered below the EPA regulation of 25 mg/L. This facility still receives normal oxygen saturation from treatment with the SDOX® unit. The treatment occurs twice every year, prior to discharge, by IFM and CBOD levels continue to meet NPDES regulations.

If you would like more information about the SDOX® system or have any other questions or requests

regarding your water quality needs, please refer to the contact information at the bottom of this page. IFM is committed to increasing the quality of water sources for a cleaner, safer environment.



Poorly-oxygenated water leads to anaerobic conditions



Trailer-mounted SDOX®



Dissolved O₂ levels upwards of 200% average