



Summary of Recent Projects

Area of Work: *Sustainability*

Project Description: Sustainable Improvements at Pulp and Paper Mill



Solar-powered basin mixer

AquAeTer was asked to review a technical design for a proposed wastewater treatment system upgrade at a pulp and paper mill. The proposal included abandoning an existing facultative lagoon system and installing a mechanized biological wastewater treatment system. The subsequent review and analysis of the existing system led **AquAeTer** to develop an innovative alternative design concept implementing Best Management Practices (BMPs) that long-term would provide a substantial system that would reduce energy and water consumption while saving the client money.

Solar-powered basin mixers were specified to provide mixing and enhance oxygen transfer at the treatment pond water surface. Early data results demonstrate that the wastewater treatment performance for this system will match “state-of-the-art” treatment levels, resulting in a nearly non-detect Biological Oxygen Demand (BOD) effluent discharge. The zero-external power mixers will provide an effective and sustainable treatment system for this pond.

The BMP review included analysis of existing manufacturing operating areas which focused on water use and identified several water conservation/re-use opportunities. Some of the BMPs required capital upgrades and equipment installation, and others were management systems that allowed one manufacturing sub-process to communicate effectively with another manufacturing sub-process. All of the BMPs had acceptable financial Return on Investments (ROIs) while reducing hydraulic and BOD loading by 20%.

The in-mill water recycling improvements have provided a vital sustainability component for the mill since water reductions are being required by state regulation. Additionally, the load reductions to the wastewater treatment off-set the need for additional electric-powered aeration equipment.



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