



Case Study

Best Solution for Lime Slurry Pumping

South Central Regional WWT, Delray Beach, FL

The Challenge

Impeller balance problems from 'plating out' of lime

Excessive wear from grit, pebbles

High maintenance costs for centrifugal and diaphragm units

The Discflo Solution

No breakdown, no maintenance in first year of operation

Lime 'plating out' not a problem due to Discpac pumping system

Discflo design ideal for viscous, abrasive, high solids fluids

Pumping lime slurry is one of the toughest application in municipal wastewater treatment. The quick lime in the water causes a "plating out" so all surfaces that come into contact with the slurry become coated with lime.

At South Central Regional Wastewater Treatment Board of Delray Beach, Florida, the problem of plating out had become critical. The impeller on the existing centrifugal pump was losing balance as the lime built up, causing destruction of the seal and potential destruction of the motor.

Plus, the grit and pebbles in the lime slurry wore down the centrifugal pumps, even with their wider clearances. In the end, the pumps were just too costly and labor intensive to maintain, so the city switched to a diaphragm pump.

The diaphragm pump was not much better. As the lime plated out, it coated the check valves so they could not close completely. This caused excessive pump wear, as well as accumulation of grit in the diaphragm-pumping zone, resulting in ruptured diaphragms. Caked with lime and battered by grit, the pump required maintenance every other day just to keep them running.

In March 2000, Bob Hagle, Executive Director of South Central Regional Wastewater Treatment Board, contacted Gerber International, Discflo's Florida distributor. Discflo pumps had proven very successful in lime slurry applications at the water and wastewater treatment plants of the City of Cocoa, City of Gainesville, City of Boca Raton, the City of Moorehaven, and the Coral Springs Improvement District, all located in Florida.

The Discflo pump was started up in April 2000 at the Delray Beach plant. Since then, it has not broken down once and has required no maintenance (reported April 2001). Lime slurry plate out is not a problem. The pressure gradients and hydraulic shearing action between the discs in the Discpac create an equilibrium of the plated lime, so there is no excess accumulation on the discs and the boundary layer maintains an effective operating thickness.

Says Stephen Gerber of Gerber International "We have never experienced the problem of excessive plating out on the Discpac. But if in fact the pump capacity ever suffered because of extreme lime buildup, the solution is easy –we would remove the Discpac and slice any buildup off the Discpac's smooth surface." Unlike centrifugal pumps, the Discflo pump does not require exact tolerances. Plus, the laminar flow and 'non-impingement' design of the Discflo pump are ideal for preventing abrasive wear in the pump and for handling viscous and/or high-solids-content slurries.

Call Discflo now to find out how our pumps can solve your problems.



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