Polyblend® Mechanical Polymer Activation System Significantly Outperforms Hydraulic Polymer Mixing Unit at Yucaipa Valley Water District Recycling Facility

Henry N. Wochholz Regional Water Recycling Facility (WRWRF) at the Yucaipa Valley Water District (YVWD) consists of primary, advanced biological secondary and tertiary treatment with advanced total nitrogen removal. While certain processes within the wastewater treatment plant have higher rate capacities, the current overall capacity of the treatment plant is 8 MGD (million gallons per day). A collection of high performance new technologies such as membrane ultrafiltration, reverse osmosis and UV disinfection allows the facility and staff to effectively recycle wastewater and ensure adequate TDS (total dissolved solids) control in the various groundwater basins.

Always interested in enhanced treatment performance, the YVWD staff members recently examined the polymer use of the existing dewatering belt filter presses. Specifically, their existing polymer mixing system utilized a non-mechanical, hydraulic mixing approach to activate their emulsion polymer. Recognizing that today's polymers are fully activated only after a short-duration high shear/energy mixing regime that breaks up polymer agglomerations followed by a lower energy mixing zone that prevents polymer chain destruction, the team engaged UGSI Solutions to pilot their Polyblend® polymer activation system. Polyblend® systems have a two zone mechanical mix chamber that imparts the appropriate G-value or mechanical shear to emulsion polymers and then allows the expanding polymer chains to "uncoil" and reach the optimal viscosity.

YVWD installed the PolyBlend® demonstration system in the dewatering building, side-by-side, with the existing polymer mixing system. The trial included a comparison of both polymer systems treating the same sludge on separate belt filter presses. During the demonstration period of 60 days the Polyblend® reduced polymer use from 67 pounds per day to 47 pounds per day, a 30% savings.

60 Day Comparison	Polyblend® M-Series	Hydraulic Polymer Mixing System	Savings
Polymer Use	47 Pound Per Day	67 Pound Per Day	***30% Savings***

The Polyblend® polymer activation system combines proven mechanical mixing technology, precise controls, a variety of pump offerings, and an easy-to-service open-frame design. Additionally, two stage dilution and automatic dosage control further protect the fragile expanding polymer and further explain the success of the trial. Finally, polymer savings with a significant reduction of polymer loading, and the desire to maintain the high standards set by the staff at YVWD, was a major influence on the decision to ultimately purchase the Polyblend® system.

Polyblend® M-Series Pilot Unit