

## CASE STUDY

# FAIRFIELD-SUISUN

Fairfield-Suisun Sewer District Reduces Plant Polymer Usage with Polyblend® DP Dry Polymer Preparation System Demo Trailer

cleanwater1



## OVERVIEW

Located between San Francisco and Sacramento in Solano County, California, the Fairfield-Suisun Sewer District (FSSD) services more than 135,000 residential, commercial and industrial customers over 41 square miles. Built in 1974 and updated most recently in 2010, the state-of-the-art facility consists of a tertiary waste treatment plant averaging 16 million gallons per day (MGD) with a capacity rated at 52 MGD. Sustainability is a priority at Fairfield, and energy efficient practices and technology are used throughout the facility, including a gas turbine that operates on methane produced in the digester; the turbine heat warms both the sludge for digestion and the maintenance building. They also have four 50 kilowatt (kW) wind turbines on site and approximately 30% of the consumed power is produced by an on-site solar array.

Polymer, used in thickening and dewatering processes, significantly contributes to the cost of operating a wastewater treatment plant. In addition to potential cost savings, decreasing polymer use is consistent with the sustainability practices at Fairfield-Suisun; less polymer results in fewer deliveries, less trucks and congestion on the road, and fewer greenhouse gas emissions. With both cost and sustainability in mind, FSSD trialed Cleanwater1 Polyblend® DP800 Demo Trailer at two applications within the plant: the screw press and the gravity belt thickener. The DP800 Demo Trailer is an integrated equipment package that automatically prepares a homogenous polymer solution. It consists of the DD4 dry polymer disperser, two side-by-side 360-gallon stainless steel mix tanks, and a final solution feed pump skid.

FSSD first applied the demo trailer at their screw press in the dewatering building, where the existing, aging polymer feed system hydraulically mixes dry polymer and water into solution. During the demo period from March 12 to April 2, 2014, while the facility was using mechanical dewatering, polymer use was reduced from 255 pounds per day to 200 pounds per day, a 22% savings. At the second application, the gravity belt thickener, the DP800 Demo Trailer yielded a 31% savings by reducing usage from 40 pounds per day to 17.5 pounds per day between April 29 and May 21, 2014.



Polyblend® DP800 Dry Polymer Preparation System Demo Trailer Fairfield, California

The Polyblend® DP series dry polymer preparation system offers a unique two-stage method of initial high-shear mixing followed by low-shear mixing. The efficient mechanical activation of the dry polymer ensures polymer optimization and lowers operating costs. An innovative stainless steel "hollow wing" mixing impeller in the mix/hold tank reduces polymer consumption by providing proper energy at low speed through impeller size and recirculation to prevent agglomerations while minimizing polymer fracture. By adding this gentle mixing step, the size of a system's subsequent aging tank can be reduced and save overall footprint. With minimal maintenance and a small footprint, the Polyblend® DP is fully automatic and easy-to-operate.

*"The Polyblend® DP800 Demo Trailer was very simple to use. I just set the settings and walked away; it was extremely user-friendly. The way it blends and the resulting polymer solution – and the reduction in polymer usage - made this an excellent unit."*

**Brad Anderson, O&M Tech V Fairfield-Suisun Sewer District**

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