

# Aqua Assist improves settling, increases clarification capacity at 58-MGD WWTP

## Results Summary

- Settling Volume (SSV) showed a 37% reduction over the 4-week demonstration
- Sludge Volume Index (SVI) improved from 140 to about 80 ml/g – a 42.8% decrease.
- Clarification capacity increased by about 960 gals/ft<sup>2</sup>.day, or enhanced capacity for the clarifier to handle 4-5X of average flow during high flow events.

## THE SITE

The 58-MGD WWTP operates a high-purity oxygen-activated sludge wastewater treatment process. It runs two parallel aeration batteries with three passes each. The North Aeration Battery had historically better settling behavior than the South Aeration Battery.

## THE TECHNOLOGY

Drylet's innovative biocatalyst draws from material science and microbiology. Its Aqua Assist product is comprised of carefully selected beneficial microbes embedded inside non-toxic particles made of an engineered porous media substrate. The particles are approximately 200-600 µm in size. They protect the microbes, allowing them to thrive and replicate fast so they can be effectively integrated into microbial ecosystems.

Settling volume in the North (control) and South (test) Aeration Batteries



## THE GOAL

The demonstration was intended to determine whether Aqua Assist could be a viable, non-chemical option for enhancing settling and improving clarifier capacity during high flow periods. The acclimation period was about two weeks; the effects of the Drylet product lasted for about two weeks after dosing was stopped.

**SSV30**  
- 37%

**SVI**  
- 42.8%

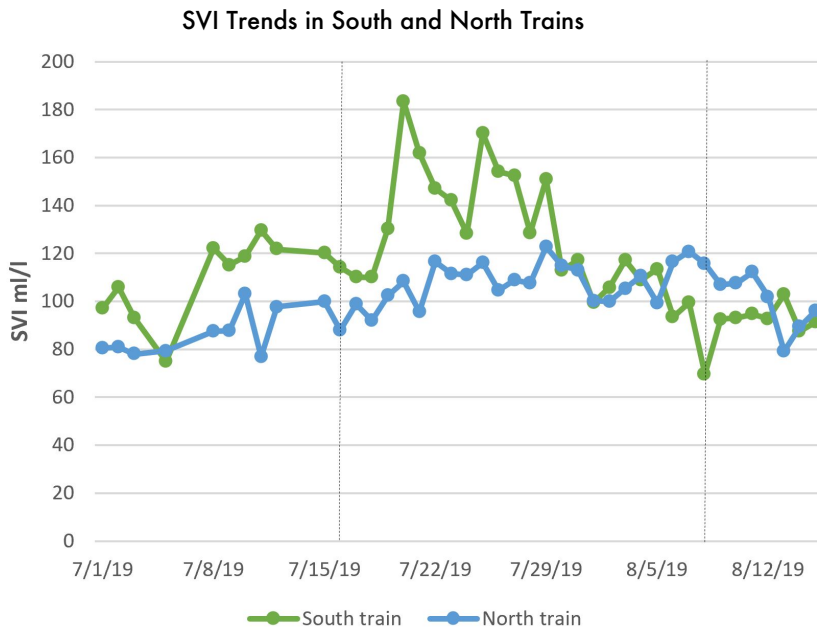
**Clarification capacity**  
4-5X average flow

## THE PROCESS

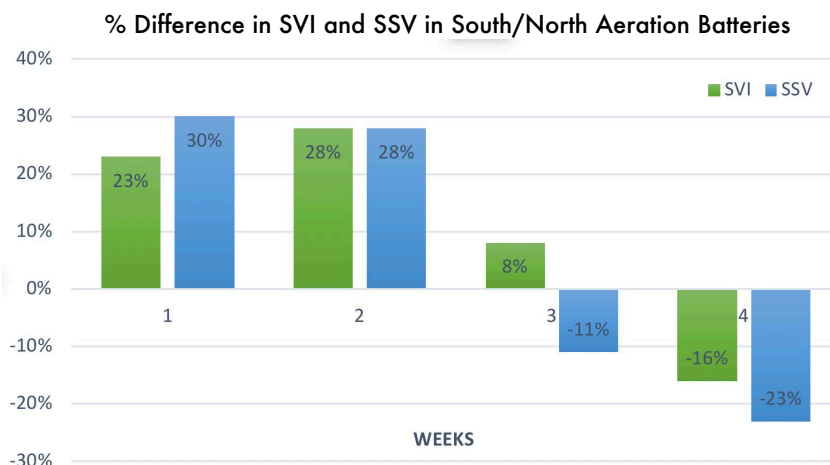
It was jointly decided by Drylet and the WWTP's operational team to dose Aqua Assist during 24 days to the South Aeration Battery, which had worse settling. The acclimation period was about two weeks and the effects of the Drylet product lasted for over two weeks after dosing was stopped.

## TRENDS

The **SVI trends** were higher in the South Aeration Battery (green line in Figure 1) prior to the start of the dosing. Within two weeks, the SVI trends between the North and South Aeration Batteries had converged. From then onward, the South Aeration Battery showed much improved settling behavior. The improved settling in the South Aeration Battery continued to be observed almost two weeks after dosing stopped.



**Figure 1** - \*The dotted lines mark the start and end dates for the dosage.



**Figure 2**

## PLANT OVERVIEW

The 58-MGD facility has primary treatment comprising of grit removal and primary clarification ahead of the aeration batteries.

Sewage is treated in a two-battery process operation on the North and South sides of the facility. Each battery has four trains, of which three are online at any one time.

The North Aeration Battery had historically better settling behavior with an average Sludge Volume Index (SVI) of 98 ml/g vs. 128 ml/g in the South Aeration Battery; and Settling Volume (SSV) of 238 ml/l vs. 342 ml/l in the South Aeration Battery.



## Changes in settling volume and SVI in the North and South Trains

After two weeks, the SVI differential between the North and South train was closed from about 23% to about 8% (see Figure 2 at left).

By the end of week 3, the SVI in the South train had reached 16% less than the value in the North Train.

Similarly, settling volume went from being 30% higher in the South vs. North train to being 23% lower over the duration of the test.