

Aqua Assist reduces biosolids volume up to 78% and slashes costs at Massachusetts plant

“ We found a simple solution to our escalating sludge-hauling problem that had a significant impact cost, while giving us no bulking, no rising solids in the clarifier, excellent denitrification, very low nutrient numbers and BOD values, all without infrastructure changes or additions. ”

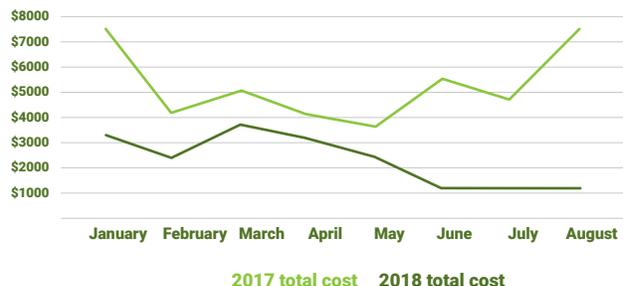
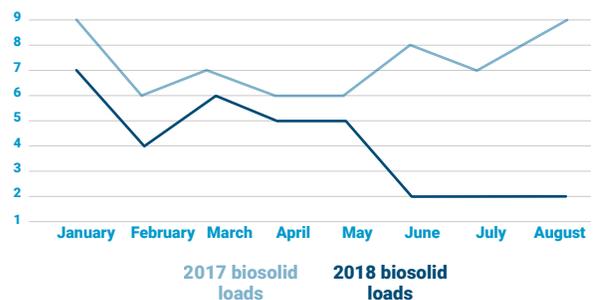
Keith Milne | Chief operator | Town of Deerfield Wastewater Division in South Deerfield Massachusetts

GROWING SAVINGS EVERY MONTH

During the course of 2017, South Deerfield hauled away 86 9,000-gallon loads hauled at an average cost of \$804 per load—a monthly average of seven loads for \$5,762. With Aqua Assist in full swing, the plant can skip waste pickups and is seeing increasing savings each month:

- **June 2018:** Sent out two loads at a cost of \$2,441—compared to eight loads in June 2017. With the \$500 monthly subscription to receive the Aqua Assist product and support services, the monthly net savings over the previous June was \$2,789.
- **July 2018:** The volume of sludge pickups decreased by more than 70% (18,000 gallons in July 2018 vs. 63,000 gallons in July 2017). The plant paid 49% less for disposal fees.
- **August 2018:** The plant reduced biosolids volume by 78% and cut disposal cost by 68% compared to August 2017.

SOUTH DEERFIELD BIOSOLIDS LOADS AND HAULING COSTS (2017 VS. 2018)





43%
monthly average biosolids
reduction for 2018 vs. 2017



\$4,635
monthly net savings in
August 2018 over August 2017

The costs of managing wastewater sludge—between hauling, landfilling and incineration fees—are escalating exponentially. In recent years, the South Deerfield wastewater treatment plant in Massachusetts has faced tripling waste-hauling costs as more landfills and incinerators near the plant close. The chief operator was searching for a solution to reduce the volume of biosolids and the frequency of waste pickups. He learned about Drylet's Aqua Assist through a trade publication article.

THE AQUA ASSIST DIFFERENCE

How Aqua Assist operates

Aqua Assist is a dry-to-the-touch product formulated with engineered inorganic and porous particles seeded with mixed microbial cultures. Aqua Assist boosts the processing power of wastewater treatment plants by accelerating the natural breakdown of biosolids into water and CO₂. Operators add Aqua Assist to the aeration basin at an average daily dose of 2 lb per 1 MGD—with no mixing required.

A subscription trial without capital investment

Drylet's subscription model allowed the South Deerfield plant to experiment with Aqua Assist with the confidence of a satisfaction guarantee. The three-month subscription trial started in November 2017 and provided product based on the plant's size, flow and configuration, along with technical support and assistance. No capital investment was required. At the start of the trial, Drylet used its data modeling software to configure a digital replica of the plant based on historical operational and process data from South Deerfield. The modeling tool informed recommendations for product application and enabled the plant to launch its trial with Aqua Assist during winter, when lower temperatures and higher salt levels create challenging conditions for biological activity.

To jump start the population of Aqua Assist microbes in the system, the plant began by adding 2 lb of product per day to the aeration tank at the splitter box, where the influent and RAS flows meet ahead of the aeration tank. After the initial weeks, the dosage was reduced to 1 lb per day.

Small operational changes drive success

Drylet provided regular customized guidance on operational practices that would complement the regimen of Aqua Assist, including techniques for suspended solids and the clarifier blanket. Prior to using Aqua Assist, the plant ran a mixed liquor suspended solid level (MLSS) level of 2,800 to 3,400 mg/L during the warm season and 3,400 mg/L to 4,000 mg/L in winter. South Deerfield scoured out the bottom of the final clarifier and kept all the sludge in the aeration tank where it could do the most work. Drylet requested that the plant let its MLSS climb to 4,000 and eventually 5,000 mg/L—new territory for the operator. The support team also recommended keeping a larger blanket of sludge in the final clarifier to help with BOD removal and give the microbes more time to reduce the biosolids inventory.

Weekly conference calls with the Drylet account manager to discuss status, results and next steps delivered ongoing guidance for success. The recommendations steered the plant into new approaches, and operating differently worked. By stepping out of their procedural comfort zone, operators at the plant were able to amplify the effectiveness of the product and achieve major results—all without any risk to regulatory compliance.

HOW THE SOUTH DEERFIELD PLANT OPERATES

- **Structure:** A small, extended aeration facility with no headworks; one mechanical, floating surface aerator; and one small circular final clarifier.
- **Size:** Average sludge wasting batch is 20,000 gallons.
- **Process:** The return activated sludge pumps turns off, allowing the solids to build up in the clarifier for several hours. The waste is moved to a sludge holding tank, introducing a coagulant along the way.



Mixed liquor sample from the aeration tank at the South Deerfield wastewater treatment plant showing smooth, compacted sludge with strong settling properties and crystal clear effluent.



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