



novozymes®

Rethink Tomorrow

WASTEWATER SOLUTIONS

Novozymes BioSpikes® 5000

Increase treatment capacity without dredging

BioSpikes® 5000 helped a paper mill postpone the need to dredge.

Benefits

- 0.38 m (1.2 ft) to 0.80 m (2.6 ft) decrease in sludge level
- 81% average increase in treatment capacity

Background

A Southeast paper mill making specialty paper from the TMP process was running out of room in its aerated stabilization basin (ASB). The 23.5-hectare (58-acre) ASB treated approximately 98,000 m³ per day (26 MGD) but was approximately 80% filled up with sludge, severely limiting treatment capacity. The ASB has a design depth of 5.2 m (17 ft). The mill had received a 2.1 million dollar quote to dredge only a small fraction of the basin.

Application

Novozymes treated three areas of the ASB with BioSpikes® 5000. Treatment and adjacent control areas were marked with stakes, and the spikes were applied from a small service boat. The distance from the sludge to the water surface was measured to gauge performance.

Results

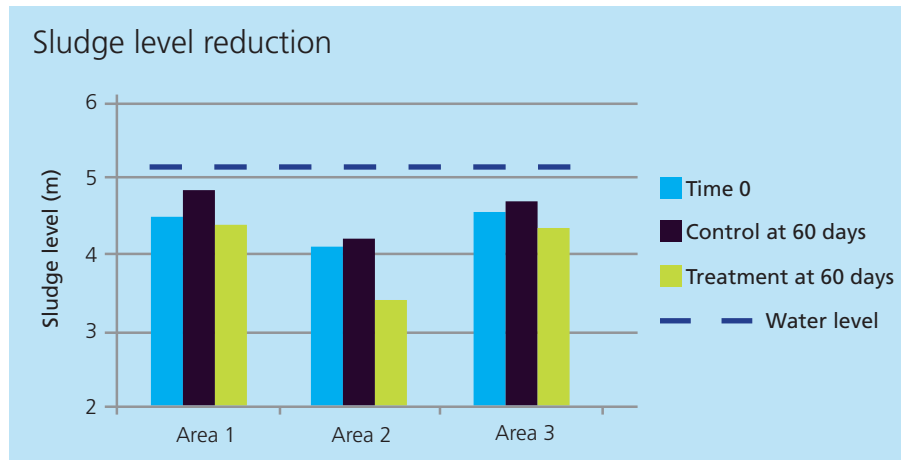


Fig. 1. The application of Novozymes BioSpikes[®] 5000 reduces the sludge level by an average of 0.56 m (1.8 ft) compared to untreated controls. In all three areas, the control plots increased by an average of 3% as sludge continued to be deposited.

Treatment vs. control					
		Area 1	Area 2	Area 3	Average
Water depth (m) t-60 days	Treatment	0.92 m (3.0 ft)	1.85 m (6.1 ft)	1.05 m (3.4 ft)	1.27 m (4.2 ft)
	Control	0.54 m (1.8 ft)	1.05 m (3.4 ft)	0.53 m (1.7 ft)	0.71 m (2.3 ft)
Sludge reduction		0.38 m (1.2 ft)	0.80 m (2.6 ft)	0.52 m (1.7 ft)	0.56 m (1.8 ft)
% increase in treatment capacity		68%	76%	98%	81%

Table 1. Treatment vs. control diagram

Conclusion

- BioSpikes[®] 5000 reduced sludge and improved treatment capacity in three separate areas of a pulp and paper ASB
- Extrapolating average results over the entire ASB, BioSpikes[®] 5000 would provide an additional 128,000 m³ (34 million gallons) of additional treatment capacity and over 31 hours of hydraulic retention time (HRT)

For more information please visit www.novozymes.com/wastewatersolutions

Novozymes Biologicals, Inc. • 5400 Corporate Circle • Salem, VA 24153 • Tel. 800 859 2972

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