FBC Technologies, Inc.

Case History #2

FBC Helps Overloaded Municipal Treatment Plant Reduce BOD and Ammonia Discharges to Zero

The Village of Elba, NY is located in the northwest part of the state. It is a rural agricultural community of about 1,200 residents. The village, served by a wastewater plant commissioned in 1971, outgrew its facility which was designed to serve a smaller population.

In 1995, the village began to experience problems in meeting its permit limits – occasionally discharging excesses in ammonia and BOD. By 1998, the problem resulted in an order from the New York State DEC that no more homes or businesses could be added to the treatment plant. The mayor and the village council began searching for ways to expand treatment capacity to allow new residential hook-ups and bring their system into compliance with their SPDES effluent limits.

Larsen Engineers, located in Rochester, NY, studied several alternatives which could be retrofitted to the existing plant. In the face of prohibitive costs, and with the DEC growing impatient, Larsen selected an efficient new treatment system developed by FBC Technologies – the Bio²Blocs! After studying Elba's needs, FBC recommended a treatment system which would involve the placement of two floating fixed-film Bio²Bloc units. Each unit would share air produced by one 10HP blower located on shore.

Since installation in December 2000, the Bio²Blocs have performed as expected and Elba is now in compliance. Elba's flow rate of approximately 85,000 GPD carries a typical municipal load of 200 mg/L BOD and 30 mg/L of ammonia. Aeration was fed through a "reef" diffusion system, supported by one 7.5HP compressor. The plant operates through three cells, with a retention time of one month. Summer SPDES permit effluent limits call for a discharge of less than 5 mg/L BOD, 3 mg/L ammonia, and a DO level of 5 mg/L.

FBC's O²ctopus floating diffusion system was installed to improve aeration and mixing in the basin. The combination of the Bio²Blocs and O²ctopus systems allowed the village to achieve nitrification much earlier than in previous years. By late April 2001 – and despite cold temperatures of 12 to 14 degrees C – the plant had achieved an ammonia removal rate of nearly 100% (< .3 mg/L in effluent). Nitrifying organisms, notoriously difficult to establish in cold water, flourished long before the arrival of warm weather.

The village now exceeds all SPDES requirements and has asked the DEC for permission to expand their treatment capacity to allow the community to grow again. The Bio²Blocs have enabled the plant to get on its feet in terms of nitrification and BOD.

If you'd like to visit the Elba, NY WWTP and see for yourself, call to schedule a visit. We'd love to show you the system in operation!

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