

Controlling Odor: Bio²Bloc System Installed at Overloaded Vegetable Canning Plant

Two Bio²Blocs were installed at Seneca Foods in Leicester, NY in late August of 1999. A crew lowered the units into the main treatment lagoon in a single morning and the units were in operation 24 hours later. This marked first occasion that Bio²Blocs have been used in a high-strength waste situation. Despite cool autumn temperatures, the Bio²Blocs proved a success in less than 30 days of operation.



September 1999

The two Bio²Blocs were located at opposite ends of the lagoon. One unit was moored near the inlet as a roughing filter. The other unit was moored at the opposite end of the lagoon to stimulate circulation and digest BOD in a relatively dead zone of circulation.

Average flow into the lagoon from the plant ranged from 650,000 to 750,000 GPD. The BOD load, the result of various vegetable canning operations, ranged from 2,000 to 3,000 pounds per day. The acidity of the water created a tough microbiological environment, with pH often drifting at or below 4.5. Effluent was spray irrigated on surrounding fields.

Six floating aerators (splashers) were operated to keep solids moving and provide some measure of aeration. Working with Seneca's regional environmental engineer and the plant manager, the Bio²Blocs were tested

to determine their ability to handle the tasks of aerating the lagoon and reducing BOD to acceptable odor control levels. After just three weeks of operation, the units spawned a sufficient bioculture to eliminate lagoon smells for the first time in 25 years. Considering that the total power requirement for both units was only 20 HP, the plant operator began to toggle off surface splashers (which consume nearly 150 HP). The goal was to reduce power from 150 HP to 25 HP and enable the company to reduce power costs by 50% with no sacrifice to DO levels.

The Bio²Blocs at this food plant were configured to maximum biofilm yield with a very dense 80 ft.² per ft.³ of bio-media. A dual aeration system was designed for each unit: one for fine bubble nourishment of the media bed and a parallel coarse bubble system to occasionally "scour" the media to prevent blinding. During operations at this plant, the BOD was reduced by 40%. Studies conducted by the SUNY Brockport Department of Microbiology indicated the presence and activity of a healthy community of bacteria which had taken up residence in the bio-film. The report compared the density and variety of bio-film organisms to suspended growth outside the Bio²Blocs.



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