

Reduction of Organic Loading In Sewer® 2009

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ECOPROBIOTICS®, of the Bacta-Pur® System, are beneficial communities of natural bacteria, which have been on earth for millions of years and have been selected for their synergistic ability to biodegrade pollutants and to improve water quality. ECOPROBIOTICS® increase biodiversity. Just as people take probiotic yogurt for its' ability to assure the presence of the optimal community for digestion and immunity, ECOPROBIOTICS® improve ecosystem health. EVERY PRODUCTION of Bacta-Pur® products is analyzed and cleared for shipment ONLY after passing all performance tests and being CERTIFIED PATHOGEN FREE using techniques from the food industry. ECOPROBIOTICS® are purely natural and beneficial; they NEVER contain added chemicals such as surfactants, emulsifiers or enzymes..., nor do they contain genetically modified (GMO) or deliberately mutated organisms. ECOPROBIOTICS® are safe and beneficial. Disease causing organisms are never used, as others do or permit. All bacterial cultures in the Bacta-Pur® product are listed on the Canadian DSL.

Background

A wastewater treatment lagoon system, in Quebec, receives municipal and industrial waste water from two municipalities. Food processing plants contribute to very high BOD overloading, during harvest season from October through December. Average monthly levels, in Fall, exceed 5000 kg (11,000 lbs) BOD/d, whereas the design capacity of the plant, in 2001, was only 1,169 kg (2,572 lbs) BOD/d. An additional treatment lagoon was added in 2001 to increase the design capacity to 1915 kg (5,658 lbs) BOD/d. Even the upgrade, however, did not resolve the challenge of complying with discharge limits, during the period of high BOD seasonal loading.

There are numerous consequences of the influent loading exceeding design capacity:

- the aeration system operates near to its maximum capacity and sometimes can not sustain optimal levels of dissolved oxygen for the biological treatment;
- use of additional blowers increases the energy operating costs;
- degradation of the surplus BOD loading, under non optimal conditions, results in the excessive sludge production, the accumulation of which reduces hydraulic retention time and further reduces treatment quality.

Treatment

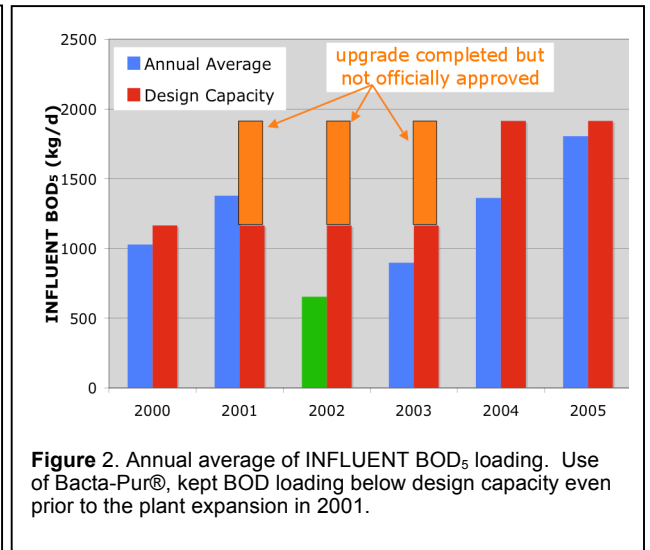
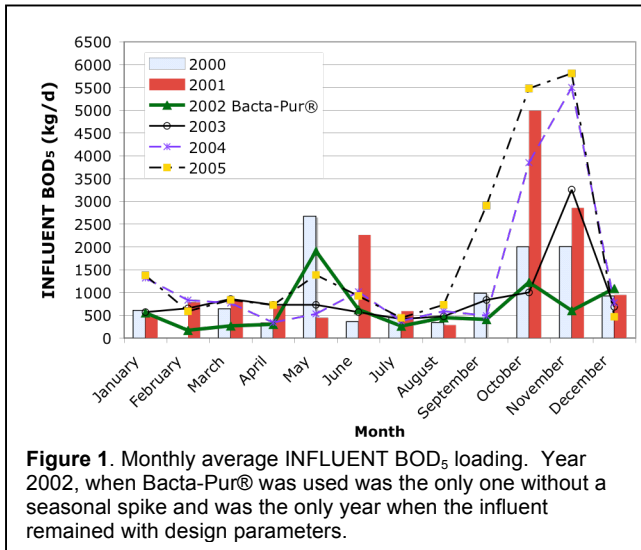
Three BACTIVATOR® incubators — model LS500 were installed about 8 km (±5 mi) upstream of the waste water treatment plant (WWTP), during the year 2002, in each of the two principal lines to the plant. The Bacta-Pur® System continually inoculated the waste water with 0.8 ppm of Bacta-Pur® XLG. The BACTIVATOR® preactivated, grew and optimized the physiological condition of the cultures prior to their introduction into the waste water.

Results & Conclusions

No BOD overloading occurred, in 2002, with the use of the Bacta-Pur® System (Figs 1&2), as compared to other years. The average annual BOD loading, for 2002 when Bacta-Pur® System was used, was only 655 kg (1,441 lbs) BOD/d, whereas the average of the two preceding years and the following one was 1,102 kg (2,424 lbs) BOD/d. Use of the Bacta-Pur® System removed 41% of influent BOD.

The Bacta-Pur® System guarantees the presence of an optimal bacterial community in the optimal physiological condition and increases biodiversity. Sewers and waste water plants are full of bacteria, but virtually all the bacteria come from our digestive tracts. Physical and chemical conditions are very different in our intestines as compared with drains, sewers, waste water plants and water bodies... Digestive tract bacteria are stressed by ambient environmental conditions, and do not provide optimal if any waste water treatment.





The Bacta-Pur® System is well known for its ability to digest grease. Removal of grease caps brings the water in contact with the air, which contains 20% or 200,000 mg/L O₂. Flowing water and turbulence accelerates the natural tendency of oxygen to diffuse from air into the virtually anoxic water. Measurable oxygen is the surplus between what is entering and what is being consumed. BOD reduction demonstrates that oxygen is entering and being consumed. The presence of the optimal and synergistic Bacta-Pur® community not only achieves BOD reduction but allows the process to occur with reduced energy expenditures and oxygen consumption.

The ability to remove over 40% of the BOD before the WWTP has many environmental and cost saving benefits. These include the potential for proportional energy savings from reduction of aeration and for reduction in chemical use. These factors alone can contribute to net reduction of wastewater treatment costs, and to meeting of more stringent discharge permits and to being able to handle increased loading without facility upgrades.

The benefits of the Bacta-Pur® System, such as biological sewer cleaning, reduction of organic loadings, operating cost and needs of upgrades, are not limited only to communities with biological treatment plants. The ability to remove over 40% of the BOD upstream of the WWTP demonstrates the ability of the Bacta-Pur® System to protect the environment in communities where there is no wastewater treatment, or when there are overflows or bypasses or only primary treatment. Much of the vast quantities of pollution entering our water bodies is avoidable with the Bacta-Pur® System. Finally, the results show that the Bacta-Pur® System can play an important role in saving energy.

