

CASE STUDY

THE USE OF BCP57CT IN THE WINTER STARTUP OF WASTEWATER TREATMENT IN A PULP AND PAPER MILL

INTRODUCTION

A pulp and paper mill that had been shut down since September 2004 was acquired by a new proprietor who scheduled start-up for January 21, 2006. The plant produced Kraft stock and the output of wastewater from production was approximately 60,000m³ per day with a BOD5 of about 350mg/L. Wastewater treatment was carried out in aerated lagoons. Startup in the two coldest winter months (January and February) presented a major challenge.

METHOD

The first aerated lagoon had a water retention time of three days, thus the potential loss of temperature in this lagoon was very great. It was not possible to heat the water in the lagoon prior to startup. The heat produced from the process was used to heat the water in the lagoon and thus to activate the bacteria. However, this required the start up and buildup a biomass in the treatment system to occur in a very short period. The startup plan was designed to increase the temperature in the first lagoon (with the heat generated from the waste water from the processing) and to simultaneously optimize the conditions necessary for the rapid growth of the biomass. The addition of nutrients (nitrogen and phosphorous) was carried out in the usual manner. A truckload of sludge from a biological treatment facility was added the day before the startup.

As far as the increase in biomass was concerned, given the cold temperature of the water (0°C at the inlet, and then between 5 and 12°C at the outlet of the first aerated lagoon) and the need for the rapid startup of treatment, it was decided to add bacteria in powder form. Bacteria specifically formulated for low temperatures BCP57CT (supplied by Bionetix) were used to this end. An initial dosage of 60kg/day was added for the first six days following startup. This quantity was then reduced to 30kg/day for a period of seven days, and then to 15kg/day over the following week. Following that, as the temperature was very cold, the dose was increased to 30kg/day for a period of seven days, and then the maintenance dose was adjusted to 8kg/day until the end of winter. A total of 1,100kg of bacteria was added.

RESULTS

Despite the difficult winter conditions, the disposal limits for treated water were met and the startup was a success. The addition of the BCP57CT bacteria certainly contributed to the success of the startup.