



Palm Oil Mill Achieves Wastewater Effluent Goals in Sabah, Malaysia with MICROBE-LIFT® Technology

Location: Palm Oil Mill, Sabah, Malaysia

Background:

This palm oil mill was having difficulty meeting effluent requirements due to build-up of sludge in its treatment lagoons. This mill was under pressure from the government to meet effluent requirements and from the surrounding area residents to eliminate tremendous malodor emanating from the lagoon system. This company was aware of the substantial cost of dredging the lagoon and was looking for a more cost-effective solution.



Fig. 1: This picture shows the final effluent lagoon completely impacted with sludge actually forming islands visible from the surface (7 July, 2007).

Objective:

Ecological Laboratories, Inc. was contacted and asked if bioremediation could offer a solution to eliminate the sludge and restore the treatment capacity of the lagoon.

Ecological Laboratories, Inc. responded to the challenge and developed a highly ambitious treatment program based on the **MICROBE-LIFT®** microbial technology supported by an oxygenating chemical BioAktiv. The object was to remediate the final effluent pond first and then treat preceding ponds one at a time until the entire system was treated. By treating one lagoon at a time, they could avoid a massive treatment overload that would be caused by solubilizing too much sludge organics at one time. By treating lagoons one at a time, they would be able to maintain higher quality effluent while removing the collected sludge. As sludge is removed, the ponds effectively increase their volume capacity and associated treatment efficiency providing cleaner effluent on a long-term basis.

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	Microbe-Lift	BioAktiv
Initial inoculation 11 Nov, 2007	50 gallons	30 kg
Next 4 weeks	15 gallons/week	10 Kg/week
Thereafter	10 gallons/month	12 kg/month

Fig. 2: Dosage schedule of recommended treatment.

Results Achieved: The pond showed dramatic improvement after only four months of treatment.



Fig. 3: The same pond as shown in figure 1 after four months of treatment shows that the “islands” have been removed and the water is much less turbid (23 October 2007).

Based on denitrification activity, the pond showed bubbling throughout. The effluent BOD levels dropped 42% from 208 mg/l to 120 mg/l in spite of the added soluble organics released as the sludge layer was degraded. The smell dropped dramatically. The local community was extremely happy and the government regulators were very impressed offering to inform other mills of the potential of this treatment.

For more information on **MICROBE-LIFT®** Technology contact
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