MICROBE-LIFT® Technology Reduces BOD, COD, and TSS and Helps Lower H_2S at Kibbutz

Location: **Kibbutz Yagur, Haifa, Israel**

Background: A field study was conducted in cooperation with Dr. R. Armon and Dr. F. Orshansky at the Center of Research in Environmental Engineering in Technion, Haifa 3200, Israel February 23 to May 17, 1994.

Kibbutz Yagur has a population of approximately 1400 people who live in a communal settlement. The kibbutz has several mid-size industries including an aluminum can factory and produces many agricultural crops including cotton and corn. The kibbutz grows cows for dairy products. The cow manure is digested anaerobically. Human and farm wastes are both transferred to three ponds for treatment. The first pond is an anaerobic sediment pond. The final water is used for agricultural irrigation. The data on each pond is illustrated in the diagram below:

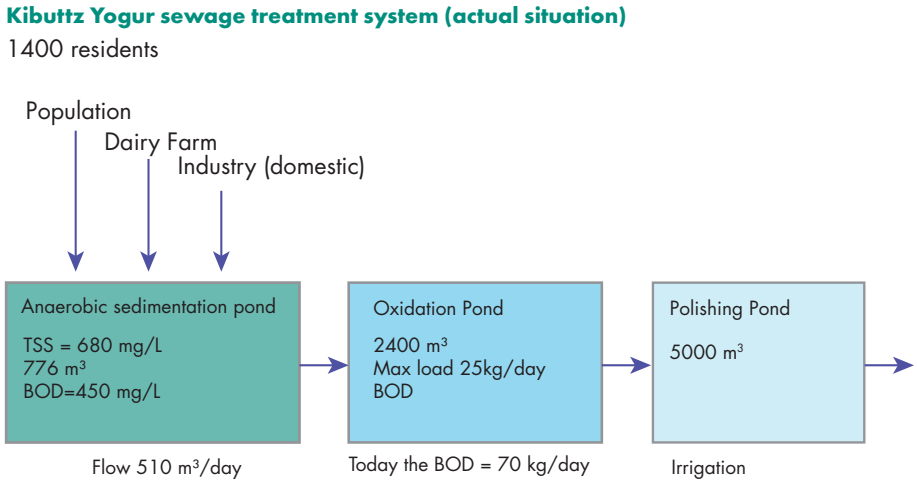

Fig. 1: *Schematic of Kibbutz Yagur's treatment system. Hydraulic retention time in the oxidation pond runs 5.2 days in summer and 2.6 days in winter.*

Objective: During hot weather the anaerobic digester and sometimes the oxidation pond emit foul odors as a result of anaerobic fermentation. The oxidation pond was chosen for the study because it had an intermediate load and the goal was to utilize MICROBE-LIFT® to improve degradation of BOD, COD, TSS, and H_2S.

To establish control parameters, the oxidation pond effluent was tested for two months prior to the application of product. Analyses were performed according to Standard Methods Manual (1992).

The dosage schedule included an initial 15-gallon purge on April 5th followed by 1.5 gallons per week for four weeks. Thereafter, for an additional three weeks, there was no further addition of product.

Results Achieved: Drs. Armon and Orshansky concluded that MICROBE-LIFT® technology met the product goals. It reduces BOD, COD, TSS and, to some extent, H_2S. They believed that all parameters indicated that the dosage should have been maintained at a higher level to achieve optimal results based on the high organic loading and short retention time. They suggested that in each application the optimal dosage should be determined, or at least adjusted, experimentally.

However, in accordance with observations above, and depicted in the following graphs, they stated that they "were able to recommend MICROBE-LIFT® as a product intended to improve water and wastewater quality."

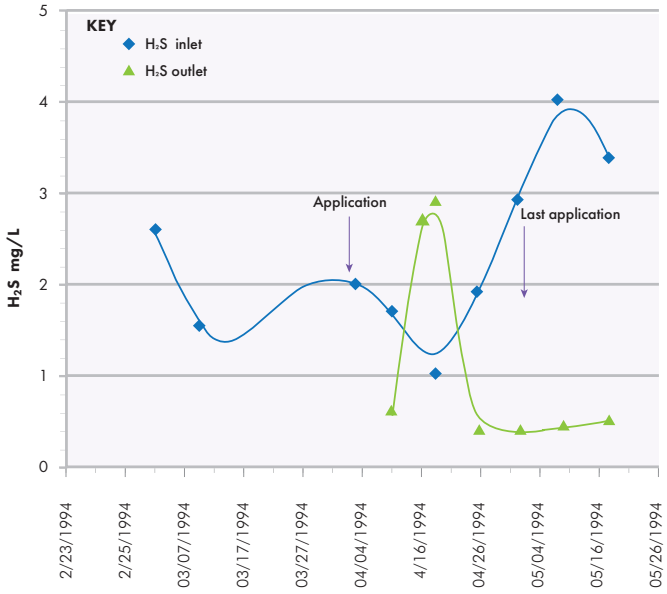

Fig.1: *H_2S data before and after product application.*

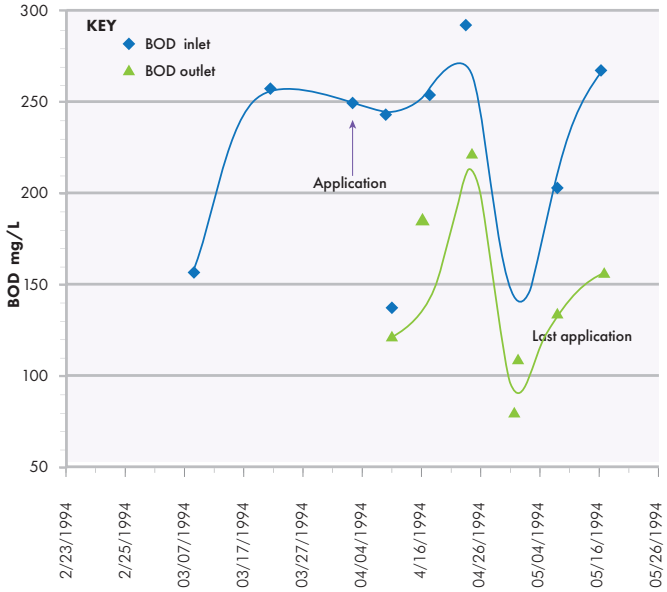

Fig. 2: *BOD results inlet versus outlet prior, during, and after product application.*

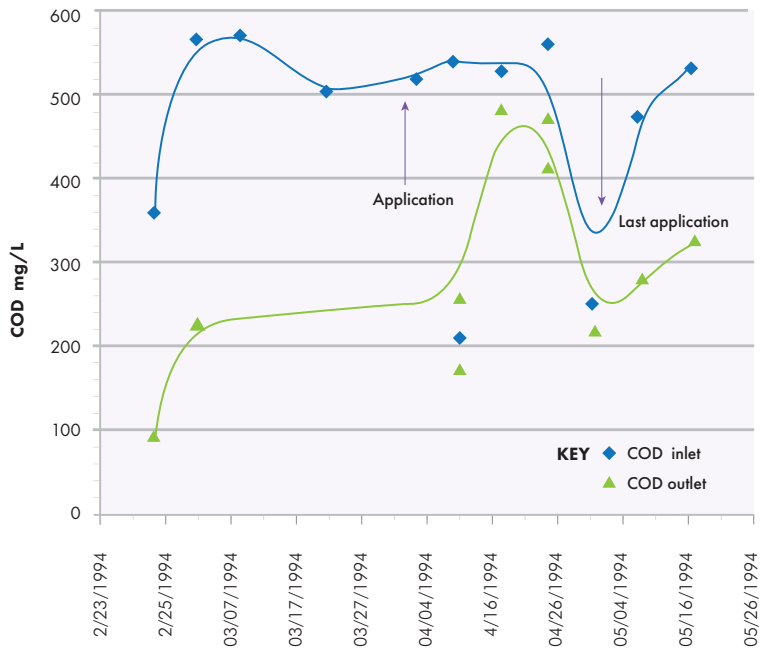

Fig. 3: *COD results prior, during, and after product application.*

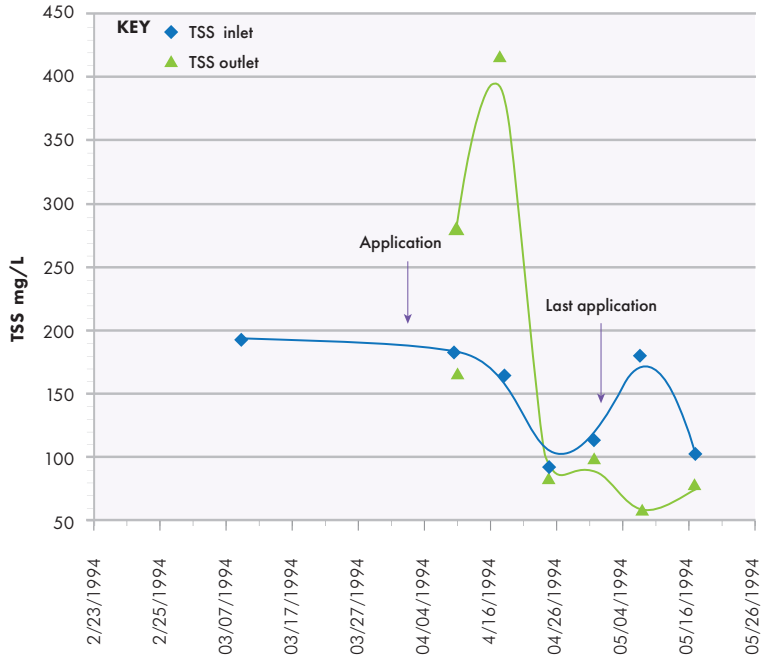

Fig. 4: *TSS results of influent and effluent prior, during, and after the trial.*

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