



SAMPLE CASE STUDIES

Date 2015

HYDROCARBON DEGRADATION

A large hydrocarbon processing company had very high levels of oil and grease in its effluent. Here we can see a thick layer of grease floating on water in the collection tank. The hydrocarbon level was above 1000 PPM. The target was to bring down the level to as low as 200 PPM. It was a tough challenge.



The effluent was mixed with our hydrocarbon degrading bacteria in the equalization tank. The bacteria were in powder form. No special equipment was required for bacteria mixing or dosing.



The bacteria and effluent mix was sprayed on plastic media filled in a bioreactor. Hydrocarbon degrading bacteria formed biofilm on the media. Hydrocarbons were partially degraded as the effluent trickled through the biofilm. This facility is not a prerequisite. However, the organization had it, and it helped us to speed up the process.



The effluent was then aerated for 24 hrs. This step allowed bacteria to degrade the hydrocarbons actively and grow vigorously. Post 24 hours of aeration, the effluent was sent to settling tank with a stand-by time of 8 hrs. The bacterial flocs settled down, leaving clear effluent at the top. The treated water was sent to a collection tank.



Here we can see the clear, treated effluent flowing in the collection tank. The treated water was analyzed by the organization's in-house Analytical Lab. The analysis was conducted using chemical method as well as using Gas Chromatography.

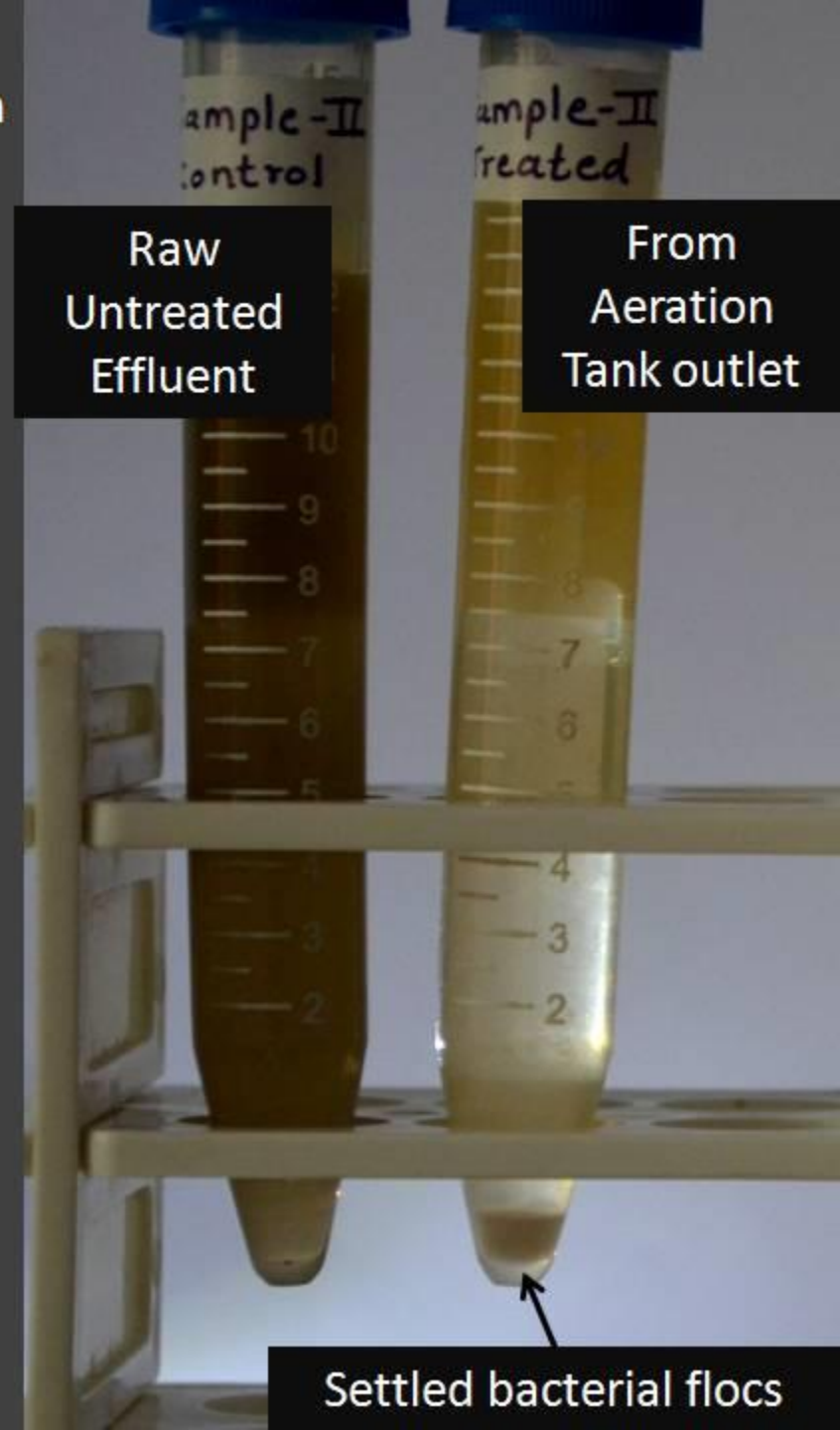


The level of hydrocarbons was down to 1 – 0 PPM! Multiple analysis were done on multiple days, using composite samples. The samples were analyzed with fresh calibration charts. The hydrocarbon levels were always less than one PPM.



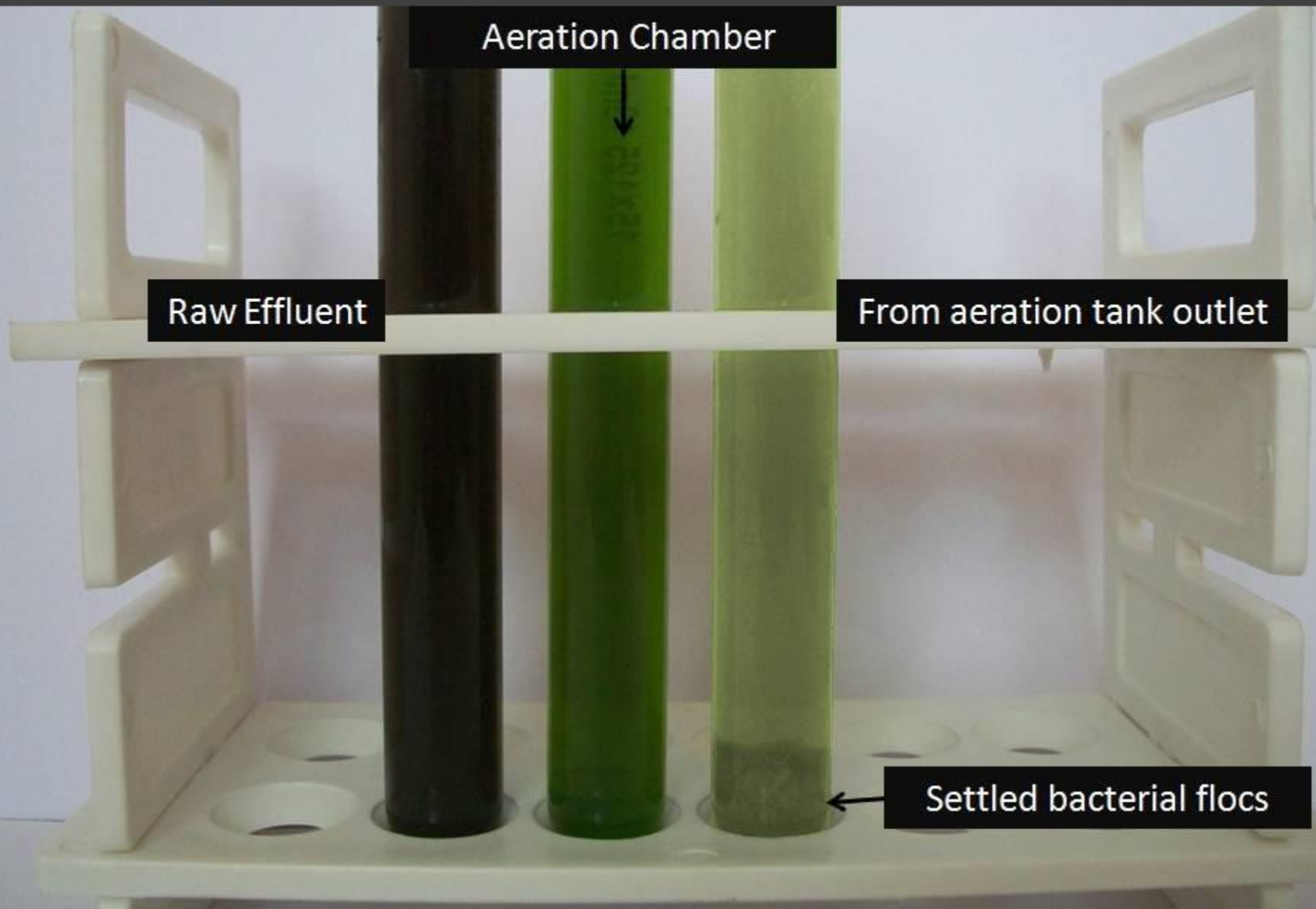
BREWERY EFFLUENT

Effluent from a brewery was treated to achieve significant reduction in COD along with reduction in color.



COLOR REDUCTION (DYES AND PIGMENTS)

Color reduction of effluent from a textile unit. The effluent had very high toxicity with minimal bacterial activity. We applied specific bacteria for breaking down chromomeric and aromatic ring compounds. Significant reduction in color was achieved.



Color reduction of effluent from a Pigment manufacturing unit.

From Aeration Chamber

Raw Effluent

From aeration tank outlet

Settled bacterial flocs



Color reduction of effluent from a Pharmaceutical manufacturing company. Most of the color was a result of pan washing after coating tablets. Besides the effluent had bacteriostatic properties. Despite this, we achieved significant color reduction.

From Aeration Chamber



Raw Effluent

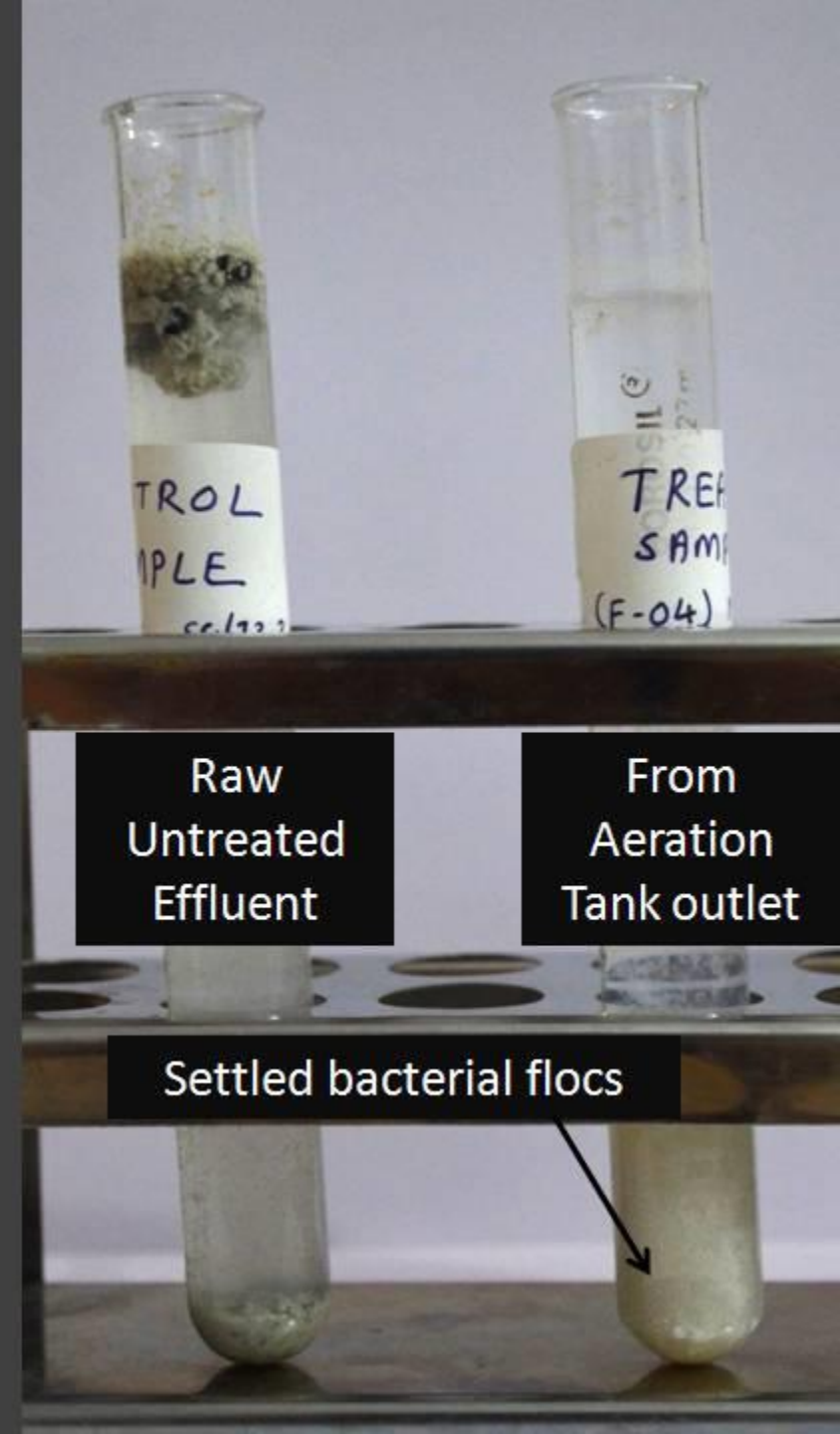
From Aeration Tank outlet

Settled bacterial flocs.

DAIRY EFFLUENT

Effluent from a milk processing unit had high levels of organic fat, grease and protein agglutinates. These formed solid scum that resisted degradation and floated on the surface.

The sample was treated with our bacterial formulation that led to effective degradation.



COD REDUCTION AND ODOUR REMOVAL

CETP in Maharashtra had issues with high COD, high TDS, and a major issue of Malodor, which was also bothering nearby residents.



After 5 days of acclimatization, three samples were withdrawn. Images of samples drawn at the organization's in-house laboratory.

Raw Effluent



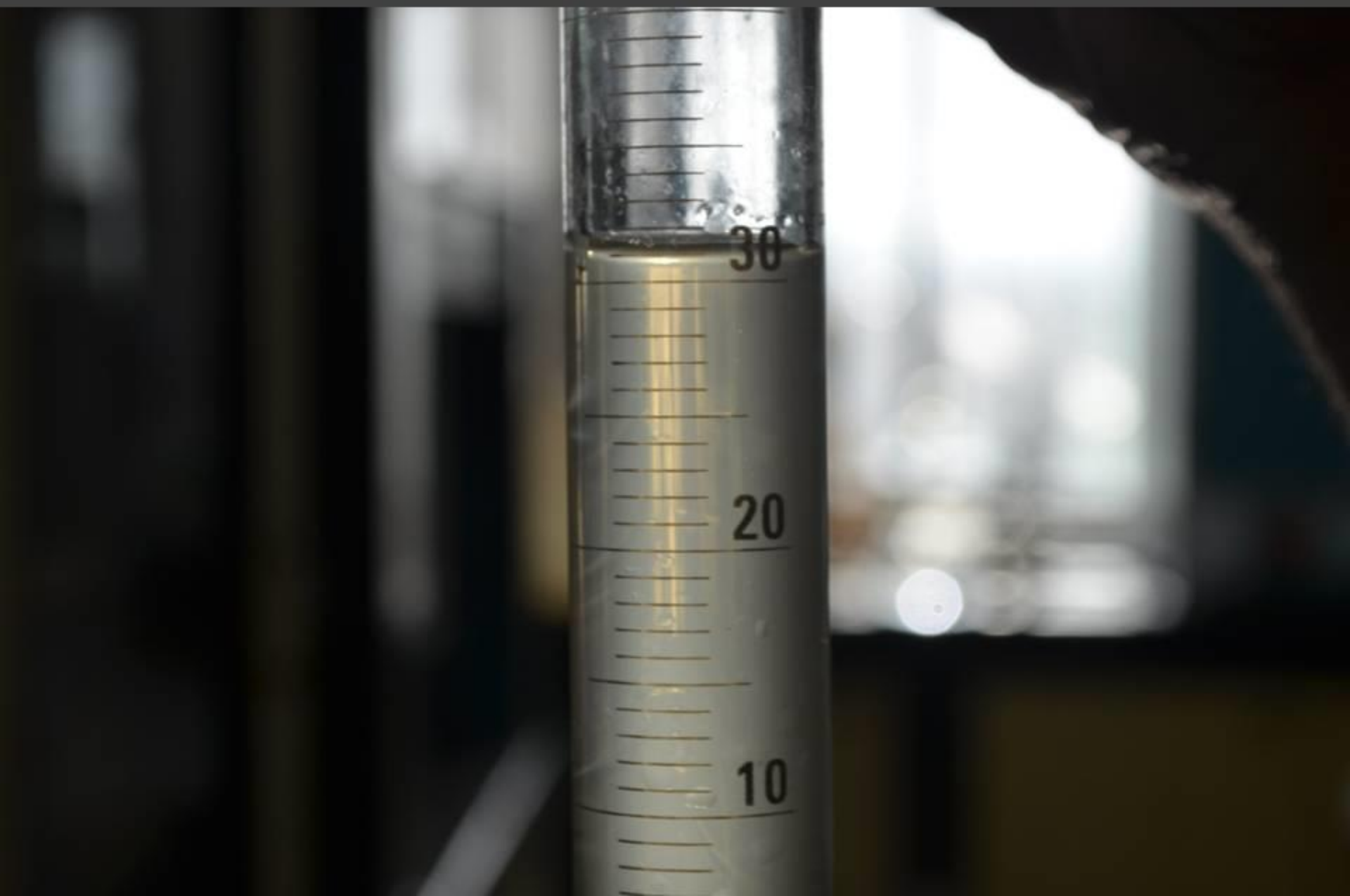
From Aeration Chamber



After Settling



The treated effluent was clear. Had very low COD and was free of obnoxious odor.



SEWAGE TREATMENT PLANT

A logistic company used our bacterial formulation to treat wastewater in their STP.



The treated water was passed from the settling tank through sand and activated charcoal filter.



The water from the plant was pumped to a collection tank. The water was reused for cleaning and maintenance activities at the plant.



UPFLOW ANAEROBIC SLUDGE BLANKET REACTOR (UASB)

A CETP in Mumbai tried our bacteria in its UASB system. It was a pilot scale facility where the formulation was tested on a 1000 L plant. The results were highly encouraging as seen here. Note the reduction in color and turbidity and increase in clarity. The system showed 80 % reduction in COD level.





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