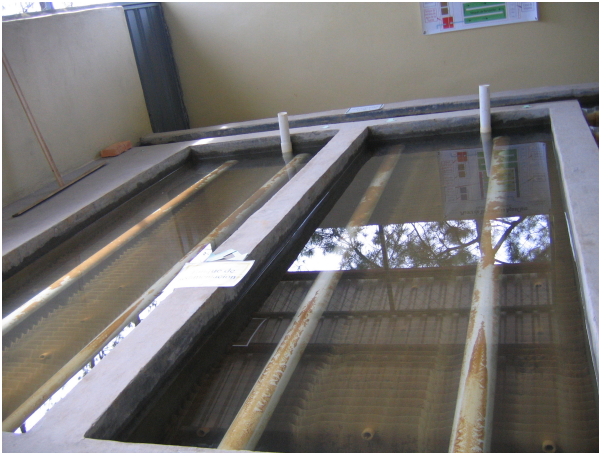


Cuatro Comunidades Sedimentation Tanks

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Sedimentation Tanks at the Cuatro Comunidades plant

Sedimentation Tanks

Abstract

For the Cuatro Comunidades plant design the depth of the two sedimentation tanks was reduced by almost half a meter from 2 meters to 1.55 meters to cut construction costs. The tanks were designed to accommodate a floc blanket which would improve effluent quality. No concrete evidence of a floc blanket had been seen before the study. One tank was shut off in an attempt to form a floc blanket. Additionally the effluent water turbidity was compared to the settled water turbidity at the end of a tube settler to determine if the sedimentation tanks were working efficiently.

Floc Blanket Research

The upflow velocity in one of the sedimentation tanks was increased in an attempt to form a floc blanket.

Sedimentation Tank Performance

The settled water turbidity at the end of the flocculator was compared to the effluent water quality

Conclusions

It is unclear whether or not a floc blanket can form at the Cuatro Comunidades plant. The largest challenge right now is that at low turbidities most flocs may not be reaching the tank. It would be advantageous to shut off one tank again when the incoming turbidity to the plant is higher. Given that there were no flocs initially rising in the tank as had been previously observed, and the clarity of the water below the lamella it is highly probable that most flocs were settling out before they reached the sedimentation tanks in this test. With more flocs in the tank it might be possible to form a floc blanket. However, it would be impractical to expect that a floc blanket could be maintained without increasing the amount of flocs that reach the sedimentation tanks at low incoming turbidities. When performance was quantified, the sedimentation tanks seemed to be performing as well as the tube settlers. The data was taken when the plant was working well. It is still unclear whether the sedimentation tanks contribute to poor effluent quality when the plant is not working well.