

Filtration Downflow Velocity

Filtration Downflow Velocity Variation

Experiment 1: 6 mm/s downflow velocity, 5 NTU influent, 10 inch foam depth, 1.5 mg/L alum dose

The experiment remained above the US minimum standard for filter performance (.9 pC*) for approximately 75 hours, essentially a period of three days.

□

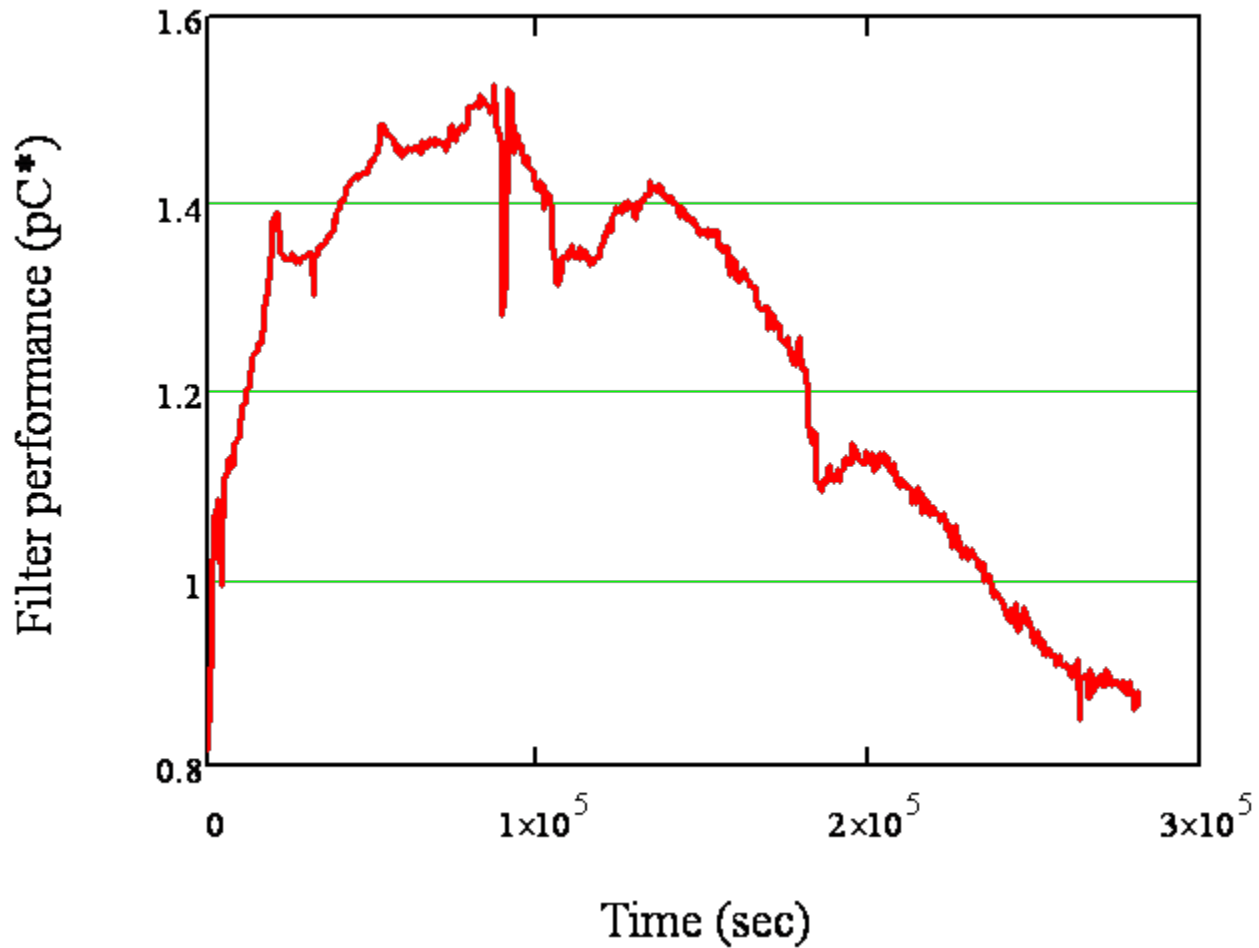


Figure 1: pC* vs Time

In addition, the experiment remained below the US maximum standard for turbidity (.3 NTU) for around 45 hours, between the run-time hours of 5 and 50.

□

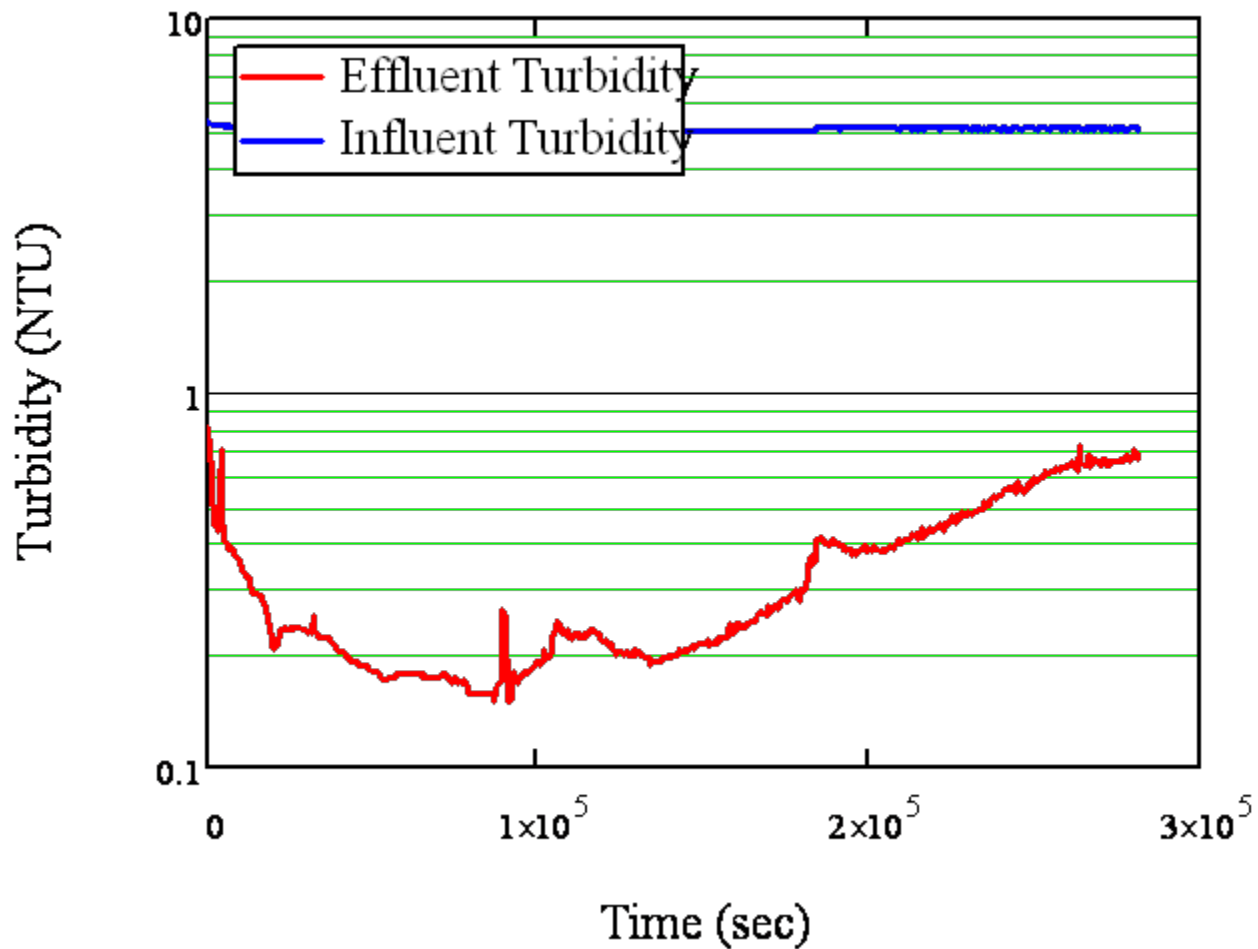


Figure 1: pC^* vs Time

These foam filtration results seem very promising as an alternative to sand filtration. The 45 hours below US standards for turbidity are commendable as the typical rapid sand filtration unit requires backwashing every 40 hours. Hence, the life-times for both filtration units are comparable.

The down flow velocity of our foam-filtration experiment at 6mm/s is 3-5 times higher than that for the typical sand filtration unit. The foam filter can then, in turn, take up 3-5 times less space as conventional sand filters that run at 2mm/s.

Experiment 2: 12 mm/s downflow velocity, 5 NTU influent, 10 inch foam depth, 1.5 mg/L alum dose

Experiment 3: 24 mm/s downflow velocity, 5 NTU influent, 10 inch foam depth, 1.5 mg/L alum dose