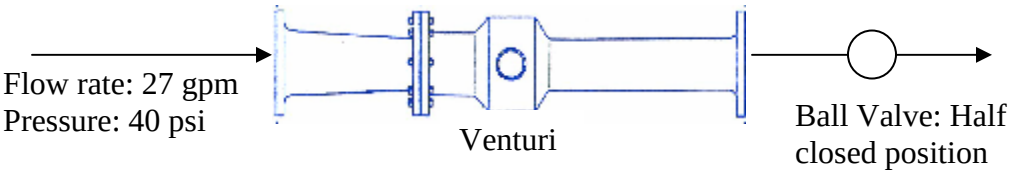
Report
08/02/05

1. Experimental Progress:

- Last week we operated the venturi in various flow rates and pressure levels. DO changes depending upon the above flow parameters. Maximum DO level was 8.8 ppm which was attained at an inlet flow rate & pressure of 27 gpm and 40 psi to the venturi. We also set the ball valve in between the venturi and storage tank at half closed position.

- Schematic of the venturi and flow parameters to attain maximum DO level:



- However, there was no significant change in pH. A possible cause might be the presence of dissolved carbon dioxide. Although, a venturi was installed to separate out carbon dioxide, the venturi in our setup is located 6 ~ 7 ft away from the discharge to the tank. The following picture obtained from "Hydro-vac treatment of septage for odor elimination and increased revenue" by Joseph E. O'brien et. al suggests that the venturi be closer to the discharge location at the top of the tank. Our future plan is to install the venturi in such a way that it opens close to the discharge location. Accumulated CO_2 at the top of the tank will then have a chance to escape.

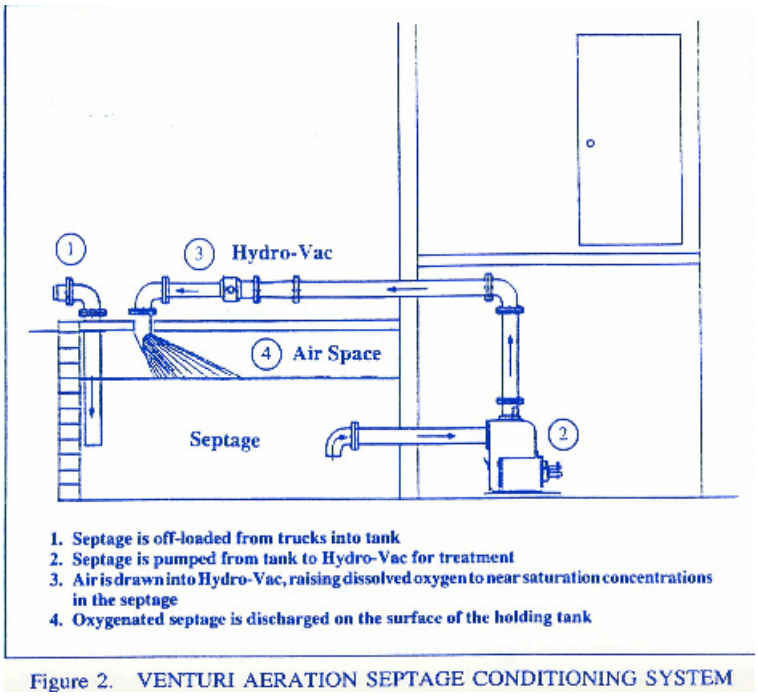


Figure 2. VENTURI AERATION SEPTAGE CONDITIONING SYSTEM

- In case pH and resistivity do not improve by CO_2 removal we are planning to procure anion resin beds to increase pH.