

CHAPTER VI
CONCLUSIONS



The specific conclusions from the work done herein include:

1) The patterns of headloss development in a multi-layer filter appear to be linear with time. This will make prediction of length of filter run possible.

2) The total headloss in filter bed is the sum of the surface cake headloss and the headloss developed in the media bed.

3) With proper amount of coagulant adding before filtration, the filtration rate of 8 gpm per sq ft ($20 \text{ m}^3/\text{m}^2\text{-hr}$) is effective in removing suspended matters as the rate of 4 and 6 gpm per sq ft (10 and $15 \text{ m}^3/\text{m}^2\text{-hr}$).

4) When the water is relatively clear (about 25 JTU), the flocculation and sedimentation steps of conventional treatment design can be omitted if the mixed-media filter is used.

5) In this experiment, it can't be suggested that the media structure of this multilayer filter is the best, model investigations for particular use should be constructed and thoroughly evaluated.

6) Since the multi-layer filter allows the floc to penetrate deeper into the bed, it can be recommended for the tertiary treatment of sewage where larger amounts of suspended solids appear.

7) In all cases, the length of the filter runs for influent of equal turbidities, were longer than the conventional rapid sand filter.