

Assignment # 01

Name # M. Ikhlas Khan

ID # 7768

Section # B

Submitted to # Engr- Nadeem  
Khan

Subject # Waste water Engineering.

Q No 01

Answer

Hydraulic retention time..

The hydraulic retention time is a measure of the average length of time that a soluble compound remains in a constructed bioreactor. The volume of the aeration tank divided by the volume of the aeration tank divided by the influent flowrate is (2)  $\tau_{H}$ .

Solid retention Time

Solid Retention Time is the average time the activated-sludge ~~solid~~ sludge are in the system.

The SRT is an important design and operating parameter for activated

Sludge - process and is usually expressed in days.

$$SRT = \frac{V \times cd}{R_{out} \times C_{out}}$$

## Decoupling SRT from HRT

Decoupling SRT and HRT Enhance the organic loading rate and Enable reactor size reduction.

There are four Approches to decouple SRT from HRT.

### Approches

- \* Bio mass Immobilization in attached growth system.
- \* Granulation and floc formation
- \* Biomass recycling
- \* Biomass retention

# Advantages of Decouple Solid retention Time from Hydraulic retention Time $\geq$

~~\*~~ Decoupling implies using less  
Resources and generating tanks  
waste per unit of Economic activity.

~~\*~~ Relative decoupling is a positive  
Sign, the real aim is to achieve  
absolute decoupling, where the  
Economy can continue to grow  
and waste generation Redu.