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Section A

Depth. Civil Engg.

Sessional assignment

No. 1 Revised

Submitted to Sir Nadeem

Hydraulic Retension Time (HRT):

The hydraulic retension time (HRT) in wastewater treatment Plant is a measure at an average length of time holding the wastewater in a tank. It is also called hydraulic residence time. The wastewater is retained in different treatment units at a particular time to acheive ~~desi~~ desired parameters.

The HRT followed in the homogenization tank is 12 to 24 hours, 24 to 48 hours in aeration tanks, 72 to 120 days in ~~aer~~ anaerobic reactors, 5 to 10 hours in secondary clarifers, 3 to 5 hours in primary clarifers, 30 minutes in chlorine contact tanks 5 to 10 minutes in deep media filters etc. If HRT is not properly maintained at various stages, we

may not get the desired parameters for discharge reuse.

Solids retension time (SRT):

The solid ~~rente~~ retension time (SRT) is the average time the activated-sludge solids are in the system. The SRT is an important design and operating parameter for the activated ~~sludge~~ sludge Process and is usually expressed in days.

It is the quantity of solids maintained in the reactor divided by the quantity of solids coming out of the reactor each day.

Methods used for decoupling SRT From HRT:

Following are the method used for decoupling SRT from HRT.

→ Dissolved oxygen (DO).
→ Mixed liquor volatile suspended solids (MLVSS).
→ Waste water pH.
→ Chemical oxygen demand (COD).
→ Sludge volumetric Index (SVI).
→ Specific oxygen utilization rate (SOUR).

Advantage of decoupling SRT from HRT.

Following are advantages.

→ Efficient biogas production.
→ Very high effulent quality in which most nutrients remain and removal of pathogens and

a small foot print.

→ They propose to discharge the effulent of a high-pH anaerobic digester to an algal culture pond.

→ In the organic reduction Performances, the smaller the ~~accumulation~~ accumulation inside the reactor and undissolved nutrients content in the outflow, the higher the mineralization performance & so the dissolved nutrients recovered in the effluent.