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Assignment 1 Revised Waste Water Engineering

the basic design parameter of waste water treatment plant system are hydraulic retention time and solid retention time?

Ans: ~~these~~ are the basic design parameter of waste water treatment plant system are we need some important parameter such as capital amount of BOD_5 , COD , TSS , VSS , TKN , total phosphorus, and also @ an inlet flow to the facilities and the temperature and pH of wastewater to be

Treated ...

① One parameter ①

pH: Generally the waste water collect = the monitored site is slightly alkaline the pH varies between

(2) 6.8 and 8.3 average value ± 0.2 turn
thus the pH values are within
the accepted range for 6.5 and 9.0
for the waste water this parameter
[H⁺] ion concentration.

(2) Hydraulic Retention time (HRT) in waste
water treatment plant is measure at an
average length of time holding the
waste water in a tank. It also known
as the hydraulic retention time.

(3) Solid Retention time (SRT) is a critical activated
sludge design and operating parameter
the traditional method for control
"SRT" is to manually adjust the
sludge wasting rate base on the
food - To micro organisms (F/M) ratio
or mixed liquor suspended solids
(MLSS) concentration.

3) Method decoupling for SRT from HRT
the hydraulic retention time (HRT) from
HRT Reduces the Capital Expenditure
and increase Biogas production and
for CHP utilization

The decoupling of SRT from HRT not
only increased glucose at organic loading
rate. that of 6.5 - 42.8 g COD/L-d and
HRT of 8 - 12 hr. the SRT to 99.9% in
the IBRCS. from 0.55 - 1.8 in the CSTRs
to 24 - 9.6 1/L-d.
SRT from HRT to ensure sufficient
reactor biomass

4) advantages of decoupling SRT from HRT:

- 1) good contact between biomass and substrate efficiency
- 2) required small areas.
- 3) stable sludge. 4) long service time
- 5) simple design 6) Relatively low cost.
- 7) low excess sludge production 8) High biomass retention
- 9) high organic loading. 10) larger granular sludge.
- 11) highly contact between sludge and wastewater
- 12) improve mixing those advantage SRT from HRT.