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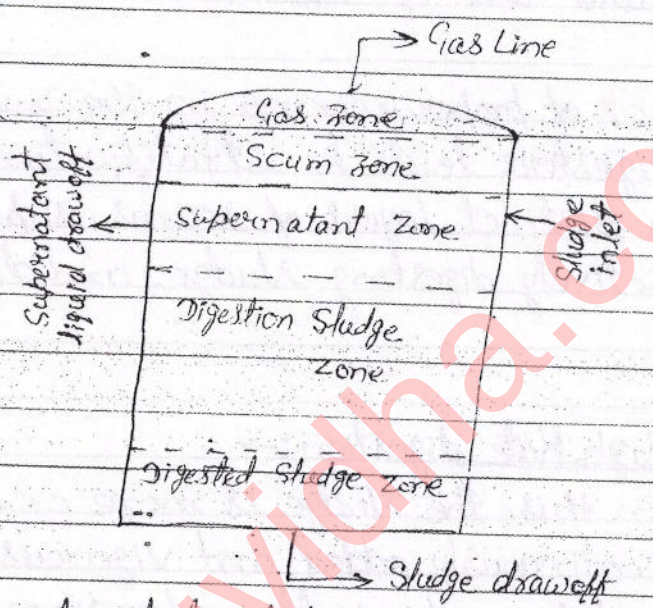
Unit-IV

Remainings----

☒ : Sludge Digestion tanks :→



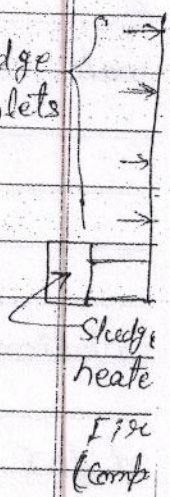
The digested sludge is withdrawn from the tank bottom. Supernatant is drawn from the digester through any one of a series of pipes extending out of the tank wall. Digestion gas from the gas dome is taken out through a gas pipe. The weight of the cover is supported by sludge and the liquid forced up between the tank wall and the side of the cover provides a gas seal. Three functions of a single-stage floating-cover digester are:

(i) anerobic digestion of the volatile solids

(ii) gravity thickening, and
(iii) Storage of the digested sludge.
A floating cover feature of the tank provides for a storage volume equal to approx. one third that of the tank.

Lack of proper mixing in the conventional digesters leads to stratification, giving rise to distinct layers of scums, supernatant, actively digesting sludge and digested sludge.

☒ High Rate digestion:→
In this, the sludge is more or less continuously added and vigorously mixed either mechanically or by recirculating a portion of the digestion gases through a compressor. Mechanical mixing is normally accomplished by an impeller suspended from the cover of the digester. Gas mixing may be of three types:-
(i) by injection of compressed gas through a series of small-diameter pipes hanging from cover into the digesting sludge
(ii) by use of a draft tube in the centre of the tank, with compressed gas injected into the tube.



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(iii) by supplying compressed gas to a number of diffusers mounted in the centre at the bottom of the tank

Because of good mixing, there is no stratification and hence loss of capacity does not arise due to supernatant or scrum or dead pockets.