

EFFLUENT TREATMENT – PART V

REF: TT/ APRIL 2021/ WK 4

Description of some processes carried out in different levels of treatment (Continued..)

E) Anaerobic digestion - Sludge is the watery residue from the primary sedimentation tank and from secondary treatment. The constituents of the sludge undergo slow digestion by anaerobic bacteria in a sludge digester. **(Anaerobic bacteria are bacteria that do not live or grow when oxygen is present.)**

In the sludge digester, sludge is maintained at a temperature of 35 deg C at pH 7-8 for about 30 days.

F) Oxidation techniques – It is a part of tertiary treatment process. Where non-biodegradable products present in the wastewater are treated. In this technique, different types of oxidizing agents are used to decolorize wastes. Sodium hypochlorite decolorizes dye bath efficiently. Ozone on decomposition generates oxygen and free radicals and these free radicals combines with coloring agents of effluent resulting in the destruction of colors. Destruction of color or decolorization is also done by ozonization.

G) Membrane technologies - The total dissolved solid or TDS from waste water can be removed by reverse osmosis. Reverse osmosis is one of the methods in membrane technologies. Reverse osmosis is suitable for removing ions and larger species from dye bath effluents with high efficiency. Dyeing process requires use of electrolytes/salts along with the dyes. Reverse osmosis membrane process is suitable for removing high salt concentrations so that the treated effluent can be re-used again in the processing. Electro dialysis is another method of membrane technologies. The dissolved salts can be removed by this process.

H) Ion exchange method - This is used for the removal of undesirable anions and cations from waste water. It involves the passage of waste water through the beds of ion exchange resins where some undesirable cations or anions of waste water get exchanged for sodium or hydrogen ions of the resin.

I) Photo catalytic degradation – This is a method to decolorize a wide range of dyes. In this process, photoactive catalyst illuminates with UV light is used to decompose organic compounds.

J) Adsorption - It is the exchange of material at the interface between two immiscible phases in contact with one another. Adsorption method helps for the removal of color from effluents.



H) Thermal evaporation - This process is ecofriendly since there is no sludge formation and no emission of the toxic chlorine fumes during evaporation.

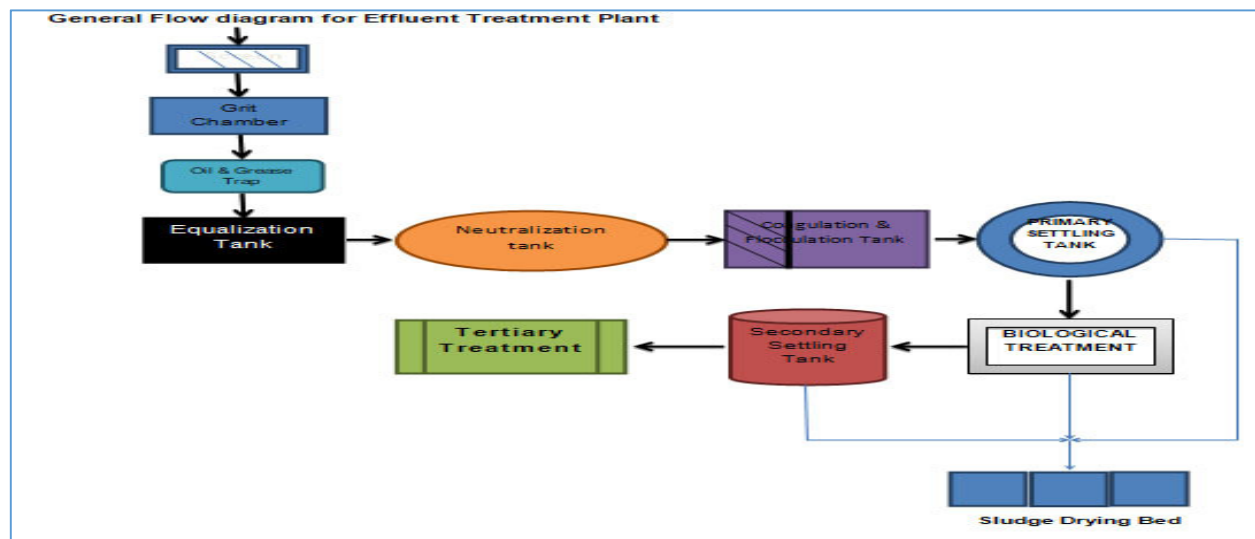


Fig 1.1 Flow diagram of Effluent treatment plant
Ref: ppdrillingfluids.in

References:

1. <http://textilefashionstudy.com/>
2. <http://neoakruthi.com/>
3. <https://www.sciencedirect.com/>
4. <https://www.ijert.org/>
5. <https://www.fibre2fashion.com/>

.....To be continued.....

UNSCRAMBLE THE JUMBLE WORDS
ESTIONDIG
ONI ANGEEXCH
TIONADSORP
MALTHER

Last week`s Answers: 1) AERATED 2) LAGOON 3) BACTERIAL 4) COLLOIDS

Wishing you a great week ahead!

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