SOP for Effluent Treatment Plant

Standard operating procedure for effluent treatment plant to treat the waste water in pharmaceutical industry.

1.0 OBJECTIVE

To provide guidelines for the operation of the effluent treatment plant

2.0 SCOPE

Applicable for effluent treatment plant of utility block.

3.0 RESPONSIBILITY

EHS Manager/ Executive EHS

4.0 ACCOUNTABILITY

Unit Head

5.0 PROCEDURE

5.1 Collect domestic and process effluent separately in the domestic tank and in equalization tank respectively through underground sewers.

5.2 Pump the process effluent from equalization tank into the flash mixer1.

5.3 Add alum solution in flash mixer1.

5.4 Allow effluent to flow from flash mixer 1 to flash mixer 2. In flash mixer 2 adjust pH up to 7.0 to 7.5 by using lime.

5.5 Add polyelectrolyte into the effluent after alum is added. Polyelectrolyte work as a flocculent.

5.6 Allow effluent to pass into the primary settling tank from flash mixer 2.

5.7 Allow settling sludge by means of gravity in the primary clarifier mechanism in the primary settling tank. Drain the settled sludge in sludge drying beds from the bottom sludge drain line.

5.8 Allow treated effluent from the primary settling tank to overflow to the aeration tank.

5.9 In aeration tank biological culture is developed. At this stage, the primary treated effluent is exposed to biological culture, which degrades organic matter present in effluent and reduces COD (Chemical Oxygen Demand) and BOD (Biochemical Oxygen Demand) from the effluent.

5.10 The effluent from the domestic collection tank should be directly fed in aeration tank by the pump.

5.10 Carry out aeration by positive displacement air blowers by means of diffused aeration. Maintain the DO (Dissolved Oxygen) level 1.5 to 2.0 ppm in the aeration tank.

5.11 The treated effluent from the aeration tank would overflow to the secondary settling tank.

5.12 The secondary settling tank is provided with a clarifier mechanism for settling and removal of sludge.

5.13 Recycle the settled sludge from secondary settling tank into the aeration tank to maintain activated biomass. Maintain the sludge volume maximum of 30% in the aeration tank.

5.14 Drain excess culture in sludge drying bed.

5.15 Allow supernatant to flow from the secondary settling tank by gravity into the filter feed tank

5.16 Pass effluent through pressure sand filter and activated carbon filte

5.23 Testing of the parameters like pH, COD, BOD, Suspended Solids (SS), Total Dissolved Solids (TDS), Chloride, Sulphates, Oil and grease of untreated and treated effluent by external agency once or twice in the month.

5.24 Check COD of untreated and treated effluent daily.

6.0 ABBREVIATIONS

6.1 SOP: Standard Operating Procedure

6.2 BOD: Biological Oxygen Demand

6.3 COD: Chemical Oxygen Demand

6.4 DO: Dissolved Oxygen