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DEPARTMENT OF CIVIL ENGINEERING

Date: - 20/10/2018

Report of Industrial Visit to "Water Treatment Plant, Ratnagiri."

Department of civil engineering organized educational visit to water treatment plant, Niwali MIDC, Ratnagiri on 17th October 2018 for TE civil students. The visit was mandatory to fulfill requirement of Mumbai University for TE students under the subject of Environment engineering-I. The visit was organized with prior permission through head of department. This visit was taken under the guidance of Asst. Prof. Mr. Mandar Pawari and supported by Ms.Gauri Kadam total with 60 students.

During the visit students studied importance of water treatment, different components of WTP, their Working, water treatment Process, water supply system etc.

Water treatment procedure involves removal of contaminants from raw water to produce water that is pure enough for human consumption without any short term or long term risk of any adverse health effect. Substances that are removed during the process of domestic water treatment include suspended solids, bacteria, algae, viruses, fungi & Suspended solids. Drinking water treatment plants are used to remove particles and organisms that lead to diseases and protect the public's welfare and supply pure drinkable water to the environment, people and living organisms. In addition, they also provide drinking water that is pleasant to the senses: taste, sight and smell and provide safe, reliable drinking water to the communities they serve. Water treatment, as a word originally means the act or process of making water more potable or useful, as by purifying, clarifying, softening or deodorizing it.

Working Principle of Water Treatment Plant

1. Intake Structure

The raw water from river is received through underground pipelines by gravity. And it transfer to WTP by pumping.

Intake structure

2. Aeration Unit

From inlet tank water is pumped in to Aeration tank. The main function of the Aeration tank is to maintain oxygen level by supplying air in sewage by mechanical diffused aerator which is at the bottom of the tank. And air is supplied continuously for activated sludge process.

Aeration unit

3. Sedimentation Unit

The sedimentation tank which fitted with clariflocculator & which is continuous flow type sedimentation tank and dissolved impurities is settle down at the bottom of tank. The dimension of sedimentation tank 15m Dia. and 10M depth.

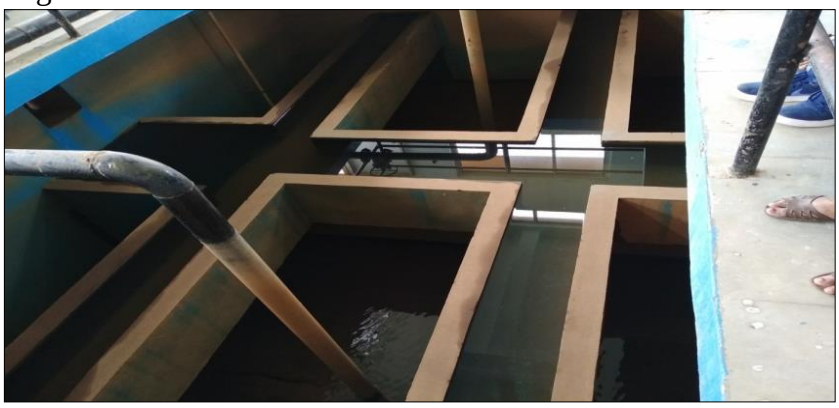
Sedimentation with coagulation

After the sedimentation process some suspended and colloidal particles are not settle down. So after addition of coagulants such as alum all the particles are get close together and form a Floc and this Floc get settle down at the bottom. In rainy season alum used in excess (100kg)

4. Filtration Unit

Water is then passed through rapid sand filter. In the sand filter suspended particle are removed. And 80-90% Bacteria are removed.

The rapid sand filter is design for 14 MLD.



Filtration unit

5. Chlorination Unit

It is a unit provided to supply dose of chlorine to treated water. It removes odour and bacteria. The maximum dose required for treated water is 2 PPM. Chlorine is used to prevent the spread the water borne diseases such as cholera, dysentery and typhoid.

6. Storage tank

After chlorination the filtered water is collected in treated water tank, from this tank water is pumped to the JSW Power Plant, Jaigad. It is Imperative that water tanks are cleaned annually to preclude delivery of algae, bacteria and viruses to people or animals.

Storage tank

TE civil students at WTP Nivali

H.O.D

Asst.Prof. Shekhar G.Sawant.