

Visit report of sewage water treatment plant



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General information

The 2.5 MLD capacity of soil biotechnology (SBT) based decentralized wastewater treatment plant at Pandharpur was set up to treat wastewater from pilgrim accommodation and colonies. The treated water is being used for irrigation and agricultural purposes. The area of installation of plant is 1800 sq. m+ utility space . In this plant different types of treatment is done on waste water like screening , sludge removal , sedimentation, aeration etc.

Purpose of visit

Our main purpose for this visit was to give the practical knowledge about how Waste water is treated and how water is used in irrigation purpose. By this visit Students can be familiar with industrial environment and get knowledge of Different units of waste water treatment plant.

What we learn..?

At starting Mr. Shinde gave the basic knowledge about treatment process, they Explain to students about that before arriving at your field , water treated at the Water Treatment Plant to remove odour, bacteria, and other impurities . Shinde sir explained the process from the first step.

Step 1: Screening and Pumping



The incoming wastewater passes through screening equipment where objects such as rags, wood fragments, plastics, and grease are removed. The material removed is washed and pressed and disposed of in a landfill. The screened wastewater is then pumped to the next step: grit removal.

Step 2: Grit Removal



In this step, heavy but fine material such as sand and gravel is removed from the wastewater. This material is also disposed of in a landfill.

Step 3: Primary Settling



The material, which will settle, but at a slower rate than step two, is taken out using large circular tanks called clarifiers. The settled material, called primary sludge, is pumped off the bottom and the wastewater exits the tank from the top. Floating debris such as grease is skimmed off the top and sent with the settled material to digesters. In this step, chemicals are also added to remove phosphorus.

Step 4: Aeration / Activated Sludge



In this step, the wastewater receives most of its treatment. Through biological degradation, the pollutants are consumed by microorganisms and transformed into cell tissue, water, and nitrogen. The biological activity occurring in this step is very similar to what occurs at the bottom of lakes and rivers, but in these areas the degradation takes years to accomplish.

Step 5: Secondary Settling

Large circular tanks called secondary clarifiers allow the treated wastewater to separate from the biology from the aeration tanks at this step, yielding an effluent, which is now over 90% treated. The biology (activated sludge) is continuously pumped from the bottom of the clarifiers and returned to the aeration tanks in step four.

Step 6: Filtration

The clarified effluent is polished in this step by filtering through 10 micron polyester media. The material captured on the surface of the disc filters is periodically backwashed and returned to the head of the plant for treatment.

Step 7: Disinfection

To assure the treated wastewater is virtually free of bacteria, ultraviolet disinfection is used after the filtration step. The ultraviolet treatment process kills remaining bacteria to levels within our discharge permit.

Step 8: Oxygen Uptake

The treated water, now in a very stabilized high quality state, is aerated if necessary to bring the dissolved oxygen up to permit level. After this step, the treated water passes through the effluent outfall where it joins the Oconomowoc River. The water discharged to the river must meet stringent requirements set by the DNR. Pollutant removal is maintained at 98% or greater.

Sludge Treatment

The primary sludge pumped from the bottom of the primary clarifiers in step three, along with the continuous flow of waste activated sludge from the aeration / activated sludge process in step four, must be treated to reduce volume and produce a usable end product. The sludge treatment process involves four steps as described here.

Conclusion

From this visit we came to know the thorough study about the introduction, principle, design, initial & final parts in sewage treatment plant. This visit is really helpful for our future studies, we studied the working process of sewage treatment plant & organizational work.

Thank you...!