

After The Flush

Student Viewing Guide

Directions: After viewing the film, fill in the missing information. You can use words from the word bank. You will not use all the words.

Primary Treatment

1. What is raw sewage called when it enters the treatment facility?
2. Give examples of some inorganic and organic contaminants found in wastewater.
Organic:

Inorganic:
3. During filtration in the first stage of primary treatment, _____ solids are removed by fine screens and transported to a landfill.
4. The grit chambers allow sand and dirt to settle to the bottom where it can be pumped out and transported to a _____.
5. In the primary clarifier, contaminants that are heavier than water (dissolved feces, food, hair etc.) settle to the bottom while lighter substances like fat and oil rise (scum) to the _____ where it is separated and transported to the _____.

Secondary Treatment

1. What is the first step of secondary treatment?
2. Aerobic microorganisms in wastewater require _____ to metabolize organic waste.
3. What are the byproducts of aerobic cellular respiration?
4. In the final clarifier, wastewater is slowed so that suspended solids settle to the bottom. Called _____ at this point, it is removed and sent to the solid digesters. Some is also recycled back to the aeration basins to replenish the microorganisms there.

Tertiary Treatment

1. During final filtration, _____ is removed from the wastewater.
2. _____ is injected to the water in a reaction chamber to kill microorganisms. It takes about 20 minutes to effectively kill all microorganisms.
3. _____ is added to neutralize the chlorine. Why is this a necessary step?
4. A portion of the effluent is used in the recycled water system. List some uses of recycled water mentioned in the film:
5. How much wastewater is treated each day?
6. What is the wastewater called after it has completed the treatment?
7. What is the treated wastewater discharged into?
8. Is there a water quality problem caused by the discharge?
9. Does the treatment facility operate under state and or federal regulations? _____ What federal law dictates the water quality standards of water being discharged in to the environment must be?

Biosolids Treatment

1. After treatment the wastewater is called _____.
2. What type of bacteria consumes waste in the solid digesters? (Hint: They do not require oxygen.)
_____.
3. A byproduct of this process is _____ gas, which is processed and sold on the natural gas market.
4. The sludge is dewatered through mechanical belt filter presses or natural evaporation in sand drying beds. The resulting biosolids material is mixed with wood chips and sold as _____.

BONUS:

What is the San Antonio Water System Environmental Trifecta?