

WATER POLLUTION and CONTROL

Domestic Treatment

In septic systems, household wastewater flows from home plumbing into a septic tank and drain field buried in the yard.

Most of the sewage solids are retained in the septic tank, where they naturally decompose through biodegradation.

The liquid effluent flows out of the septic tank into a series of perforated drainpipes called a drain field, and then out of holes in the drainpipes into the underlying soil.

When the system is functioning properly, effluent from the tank receives further treatment through filtration, sorption, and biodegradation as it percolates down through the soil.

Sewage Treatment Plants

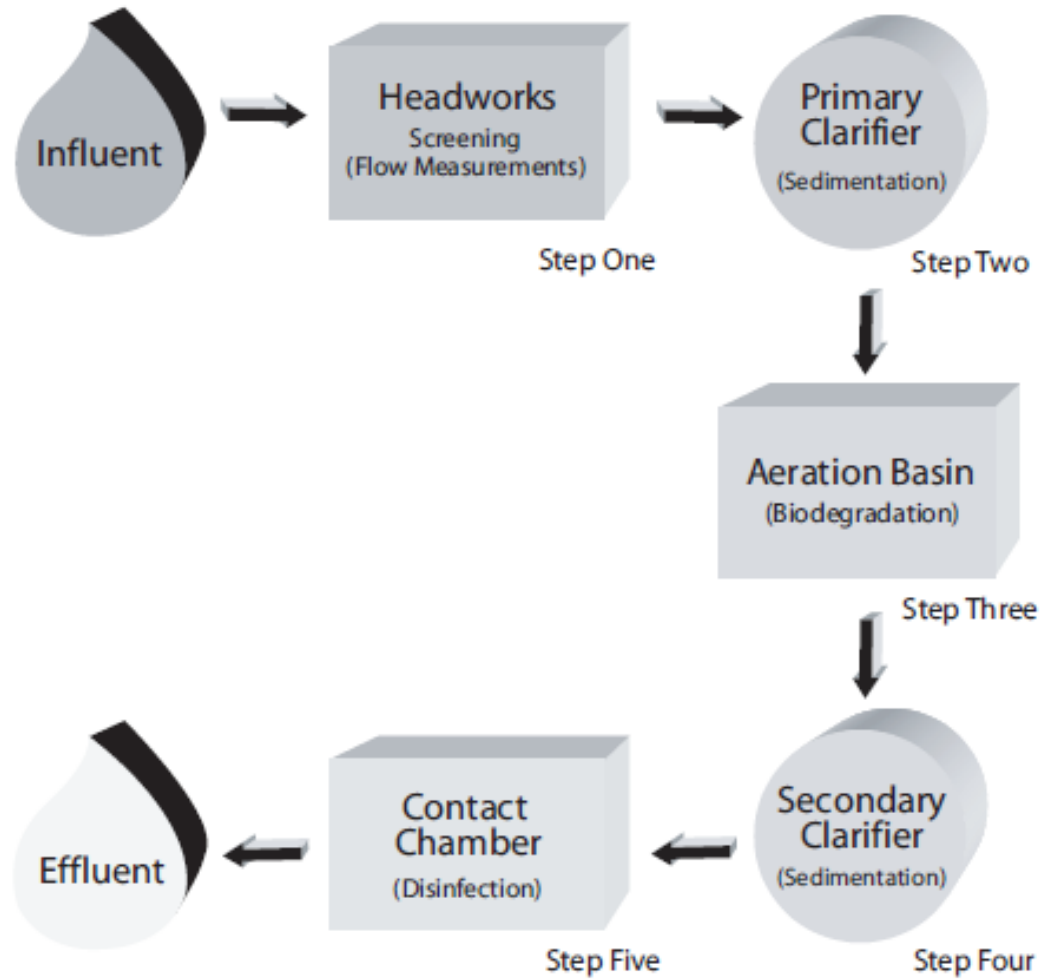
Domestic wastewater from most urban areas flows from home plumbing into sewer pipes located under the street and then to a community's sewage treatment plant.

Most communities treat their sewage using a common, five-step process.

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- The sewage flows into an area referred to as the headworks.
 - The sewage flows into a large tank called a primary sedimentation basin or primary clarifier.

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- The sewage—minus the removed solids—flows from the primary clarifier into another basin, where large paddles or brushes add air by vigorously mixing the wastewater.
 - The outflow from the aeration basin, consisting mainly of water and bacterial cells, flows into a large tank called a secondary clarifier.

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- The water flows out of the secondary clarifier to a chamber or basin for disinfection. Most communities disinfect their wastewater by adding chlorine and mixing it thoroughly with the effluent.
 - Other methods of disinfecting wastewater are available, such as adding ozone or passing the treated wastewater through ultraviolet light.



Five common steps for treating sewage.

Constructed wetlands remove pollutants through the processes of sedimentation, filtration, sorption, and biodegradation as wastewater flows through the wetland.

Natural wetlands can “polish” domestic wastewater—in other words, provide additional treatment—following a specified level of pretreatment using other processes. However, natural wetlands may not always be a desirable alternative for treating or polishing domestic wastewater because of the potential harm to the vegetation and aquatic organisms in the wetland.

Industrial Treatment

Unlike municipal treatment techniques, however, which are similar from one community to the next, **industrial treatment techniques** are industry-specific.

Treatment processes vary even within a single industry, depending on the nature of the pollutants found in the wastewater of a particular manufacturer or factory.

References

- Anonymous 2002. Clean Water-An Introduction to Water Quality and Water Pollution Control Ed. By Kenneth M. Vigil.— 2nd ed., Columbia.