



Indiana's Water Riches

How we use it

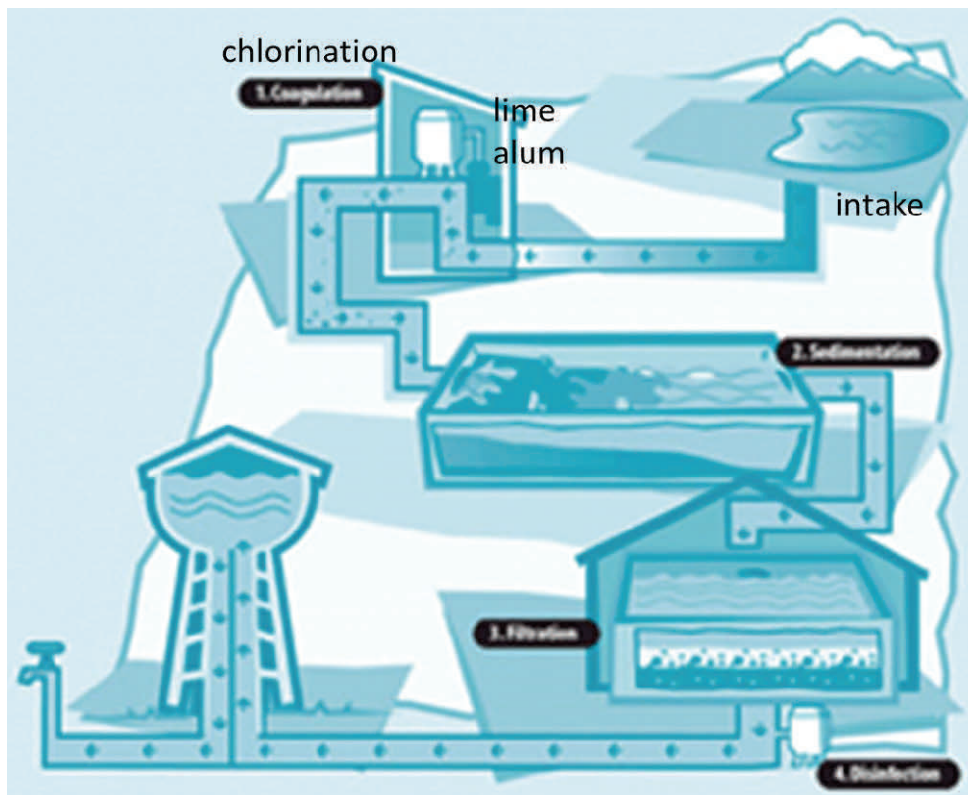
Water Treatment Plant Makes Drinking Water Safe

Where does your drinking water come from? Does it come from a well? If so, you are drinking groundwater. If you live in town your water probably comes from a water treatment plant. Water treatment plants use different processes depending on the water source, season, and local contaminants. A common Indiana water treatment process is described below.

First, the water is piped through a chlorination unit where chlorine kills bacteria and viruses. Lime and alum are added to the water to adjust the pH and take out impurities. The water is mixed thoroughly so the alum and impurities stick together in little particles which settle out in the sedimentation unit.

The water then passes through one or more filters of sand, gravel and activated charcoal to remove sand, nutrients, organic solids and dissolved compounds. Finally, the water is treated with chlorine gas again to kill any remaining bacteria and other disease-causing organisms. Ultraviolet radiation and other treatments are sometimes used.

Drinking water is sometimes pumped to a water tower for storage until needed.



Vocabulary Words

Alum

A compound that binds with suspended solids to help them settle out of water.

Hazardous wastes

Wastes that are dangerous and need special handling.

Lime

A compound that helps adjust the pH of water so it isn't too acidic.

Point Source

A source of pollution that is easy to see, usually coming from a pipe or tile.

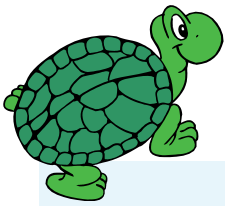
Non-point Source

A source of pollution that doesn't come from a specific area (such as a pipe).

Septic (Onsite) System

Underground tanks and pipes that carry waste from the kitchen, toilet, shower, and other drains. These systems use microorganisms to help break down waste before the water is released into soil.

chlorination



Ask Sheldon

Dear Sheldon,

My sister spends her allowance on bottles of mineral water. She says it's better because it is pure. But I think she's wasting her money. What do you think?

Babette Perrier

Dear Babette,

I agree with you. Truly pure water is made of molecules with two hydrogen atoms and one oxygen atom and nothing else. Pure water doesn't occur naturally. Water often has minerals in it or a few bacteria but is still safe. The cost of making pure water is high. So chances are your sister's bottled water isn't really pure. Bottled water can cost 1,000 times more than tap water and may not be any different than your tap water.

Sheldon

Dear Sheldon,

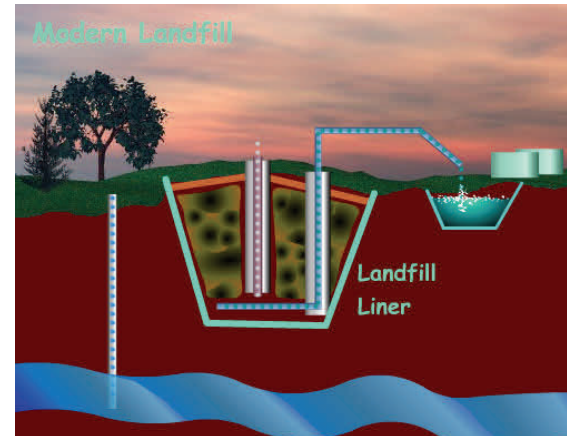
Last summer I went backpacking in beautiful, high mountains. We used water from the lakes and streams. My cousin boiled our drinking water before we used it. Why did we have to boil it when it looked so clean?

Whitney Muir

Dear Whitney,

Just because the water came out of a clear, sparkling brook does not mean it's safe. It was wise to boil the water to kill any bacteria or germs that could have been in it. Bacteria can cause digestive problems, so water treatment plants use chlorine to disinfect water. Private wells should be at least 100 feet deep and septic systems and other possible contaminants can not be close to the well.

Sheldon



A landfill has clay and plastic liners to keep the pollutants from reaching the water table. A series of leachate tubes at the bottom of the landfill carry the contaminated water to the treatment plant.

According to the Environmental Protection Agency, the average American produces about 4.4 pounds of garbage a day, or a total of 29 pounds per week and 1,600 pounds a year 1,600 lbs of garbage per year.

How a New Landfill Works

Thomas P. Gopher held a news conference recently asking the Aquasoggy Solid Waste Management district to approve construction of a modern landfill to replace the aging dump. He said:

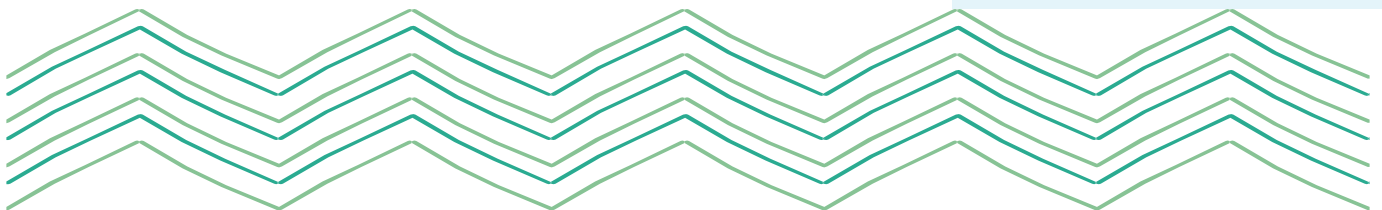
"Rain and snow falls on the old dump. Water percolates down through the garbage and into the groundwater. It may pick up dangerous pollutants as it trickles through old garbage. The pollutants may reach the ground water we use."

"The old dump is an example of a point source, that is a specific place where pollution can enter the water supply."

"The new landfill is needed to protect our drinking water!"

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Questions

What is the difference between pure water and safe water?

Which will probably pollute groundwater and surface water more? Circle one.

- A. Pesticide bottles thrown into a ditch.
- B. Pesticide bottles put into a landfill.

Explain your choice:

What Do YOU Think?

Circle the either T for true or F for false

- T or F Water pollution only comes from factories and farmers.
- T or F Motor oil spilled on the ground can pollute groundwater.
- T or F Water contaminated with bacteria can cause people to get sick.
- T or F Chemicals sprayed on a golf course is an example of point-source pollution.

Name six household items that can pollute groundwater if not used and disposed of properly:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Did you know:

Did you know that of all U.S. bodies of water sampled, that more than half are rated impaired or polluted? Your help in conserving and caring for our bodies of water is more important today than ever.

