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www.epa.gov/superfund/sites
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A Citizen's Guide to Air Stripping

The Citizen's Guide Series

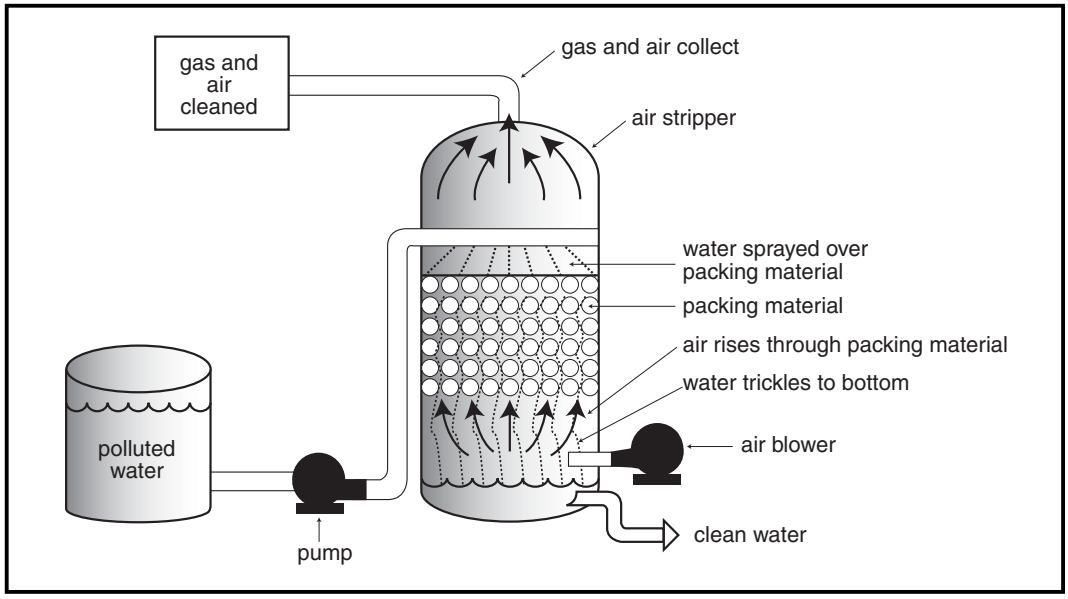
EPA uses many methods to clean up pollution at Superfund and other sites. If you live, work, or go to school near a Superfund site, you may want to learn more about these methods. Perhaps they are being used or are proposed for use at your site. How do they work? Are they safe? This Citizen's Guide is one in a series to help answer your questions.

What is air stripping?

Air stripping is the process of forcing air through polluted groundwater or surface water to remove harmful chemicals. The air causes the chemicals to change from a liquid to a gas (evaporate). The gas is then collected and cleaned. Air stripping is commonly used to treat groundwater as part of a pump and treat remedy. (See *A Citizen's Guide to Pump and Treat* [EPA 542-F-01-025].)

How does it work?

Air stripping uses equipment called an *air stripper* to force air through polluted water. An air stripper usually consists of a large tank filled with a packing material, made of plastic, steel, or ceramic. The polluted water is pumped into the tank and sprayed over the packing material. The water trickles down through the spaces between the packing material toward the bottom of the tank. At the same time a fan at the bottom blows air upward. As the air passes upward through the trickling water, it causes the chemicals to evaporate. The air



carries the evaporated chemical gases to the top of the tank where they are collected and cleaned (see *A Citizen's Guide to Activated Carbon Treatment* [EPA 542-F-01-020]). By spreading the water over the packing material, the rising air can reach more of the polluted water and evaporate more of the harmful chemicals. As water trickles to the bottom of the tank, it is collected and tested to make sure it is clean. If chemicals are still present, the water may be passed through the same or another tank, or cleaned up using a different method.

Air strippers vary in size and structure. Some force air across the tank, rather than up through it. Others do not use forced air. Instead, they simply rely on the water trickling through the air in the tank to evaporate the chemicals. Air strippers are designed specifically for the types and amounts of harmful chemicals in the water found at a specific site.

Is air stripping safe?

Air stripping is safe to use. Air strippers can be brought to the site so polluted water does not have to be transported to a cleanup facility. The polluted water is contained throughout cleanup so there is no chance for coming into contact with the water. The polluted gases that are produced by the air stripping are cleaned up and tested by EPA. The clean water can be returned to the site.

How long will it take?

The time it takes to clean up groundwater or surface water using air stripping depends on several factors:

- amount of polluted water
- types and amounts of harmful chemicals present
- rate that water can be pumped
- number of air strippers used

Depending on the site, it can take many years to complete a cleanup.

Why use air stripping?

Air stripping works best on water containing chemicals that evaporate easily (like fuels and solvents). Air stripping can remove about 99% of these chemicals when it is designed properly. Air stripping cannot remove metals, PCBs, or other chemicals that do not evaporate. Air strippers are simple to construct at a site and easy to maintain. They have been used to clean up polluted water at hundreds of sites.

For more information

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Further information also can be obtained at **www.cluin.org** or **www.epa.gov/superfund/sites**.