

## 6. What Can I Do If There Is A Problem With My Drinking Water?

Local incidents, such as spills and treatment problems, can lead to short-term needs for alternative water supplies or in-home water treatment. In isolated cases, individuals may need to rely on alternative sources for the long term, due to their individual health needs or problems with obtaining new drinking water supplies.

### What Alternative Sources Of Water Are Available?

Bottled water is sold in supermarkets and convenience stores. Some companies lease or sell water dispensers or bubblers and regularly deliver large bottles of water to homes and businesses. It is expensive compared to water from a public water system. The bottled water quality varies among brands, because of the variations in the source water used, costs, and company practices.

The U.S. Food and Drug Administration (FDA) regulates bottled water used for drinking. While most consumers assume that bottled water is at least as safe as tap water, there are still potential risks. Although required to meet the same safety standards as public water supplies, bottled water does not undergo the same testing and reporting as water from a treatment facility. Water that is bottled and sold in the same

state may not be subject to any federal standards at all. Those with compromised immune systems may want to read bottled water labels to make sure more stringent treatments have been used, such as reverse osmosis, distillation, UV radiation, or filtration by an absolute 1 micron filter.

Check with NSF International to see if your bottled water adheres to FDA and international drinking water standards. The International Bottled Water Association can also provide information on which brands adhere to even more stringent requirements. Contact information is listed in Appendix C.

### Can I Do Anything In My House To Improve The Safety Of My Drinking Water?

Most people do not need to treat drinking water in their home to make it safe. However, a home water treatment unit can improve water's taste, or provide a factor of safety for those people more vulnerable to waterborne disease. There are different options for home treatment systems. Point-of-use (POU) systems treat water at a single tap. Point-of-entry (POE) systems treat water used throughout the house. POU systems can be installed in various places in

the home, including the counter top, the faucet itself, or under the sink. POE systems are installed where the water line enters the house.

POU and POE devices are based on various contaminant removal technologies. Filtration, ion exchange, reverse osmosis, and distillation are some of the treatment methods used. All types of units are generally available from retailers, or by mail order. Prices can reach well into the hundreds and sometimes thousands of dollars, and depending on the method and location of installation, plumbing can also add to the cost.



| TREATMENT DEVICE  | WHAT IT DOES TO WATER  | TREATMENT LIMITATIONS   |
|---|--|---|
| <p>Activated Carbon Filter</p> <p>(includes mixed media that remove heavy metals)</p> | <ul style="list-style-type: none"> <li>✓ Adsorbs organic contaminants that cause taste and odor problems.</li> <li>✓ Some designs remove chlorination byproducts;</li> <li>✓ Some types remove cleaning solvents and pesticides</li> </ul>   | <p>Is efficient in removing metals such as lead and copper</p> <p>Does not remove nitrate, bacteria or dissolved minerals</p>   |
| <p>Ion Exchange Unit</p> <p>(with activated alumina)</p>                              | <ul style="list-style-type: none"> <li>✓ Removes minerals, particularly calcium and magnesium that make water "hard"</li> <li>✓ Some designs remove radium and barium</li> <li>✓ Removes fluoride</li> </ul>   | <p>If water has oxidized iron or iron bacteria, the ion-exchange resin will become coated or clogged and lose its softening ability</p>   |
| <p>Reverse Osmosis Unit</p> <p>(with carbon)</p>                                      | <ul style="list-style-type: none"> <li>✓ Removes nitrates, sodium, other dissolved inorganics and organic compounds</li> <li>✓ Removes foul tastes, smells or colors</li> <li>✓ May also reduce the level of some pesticides, dioxins and chloroform and petrochemicals</li> </ul> | <p>Does not remove all inorganic and organic contaminants</p>   |
| <p>Distillation Unit</p>  | <ul style="list-style-type: none"> <li>✓ Removes nitrates, bacteria, sodium, hardness, dissolved solids, most organic compounds, heavy metals, and radionuclides</li> <li>✓ Kills bacteria</li> </ul>  | <p>Does not remove some volatile organic contaminants, certain pesticides and volatile solvents</p> <p>Bacteria may recolonize on the cooling coils during inactive periods</p> |

Activated carbon filters adsorb **organic contaminants** that cause taste and odor problems. Depending on their design, some units can remove chlorination byproducts, some cleaning solvents, and pesticides. To maintain the effectiveness of these units, the carbon canisters must be replaced periodically. Activated carbon filters are efficient in removing metals such as lead and copper if they are designed to absorb or remove lead.

Because ion exchange units can be used to remove minerals from your water, particularly calcium and magnesium, they are sold for water softening. Some ion exchange softening units remove radium and barium from water. Ion exchange systems that employ activated alumina are used to remove fluoride and

arsenate from water. These units must be regenerated periodically with salt.

Reverse osmosis treatment units generally remove a more diverse list of contaminants than other systems. They can remove nitrates, sodium, other dissolved inorganics, and organic compounds.

Distillation units boil water and condense the resulting steam to create distilled water. Depending on their design, some of these units may allow vaporized organic contaminants to condense back into the product water, thus minimizing the removal of organics.

You may choose to boil your water to remove microbial contaminants. Keep in mind that boiling reduces

the volume of water by about 20 percent, thus concentrating those contaminants not affected by the temperature of boiling water, such as nitrates and

## Maintaining Treatment Devices

All POU and POE treatment units need maintenance to operate effectively. If they are not maintained properly, contaminants may accumulate in the units and actually make your water worse. In addition, some vendors may make claims about their effectiveness that have no merit. Units are tested for their safety and effectiveness by two organizations, NSF International and Underwriters Laboratory. In addition, the Water Quality Association represents the household, commercial, industrial and small community treatment industry and can help you locate a professional that meets their code of ethics. EPA does not test or certify these treatment units.

pesticides. For more information on boiling water, see page 5 of this booklet.

No one unit can remove everything. Have your water tested by a certified laboratory prior to purchasing any device. Do not rely on the tests conducted by salespeople that want to sell you their product.

## Where Can I Learn More About Home Treatment Systems?

Your local library has articles, such as those found in consumer magazines, on the effectiveness of these devices.

The U.S. General Accounting Office published a booklet called *Drinking Water: Inadequate Regulation of Home Treatment Units Leaves Consumers At Risk* (December 1991). To read this booklet, visit [www.gao.gov](http://www.gao.gov) and search for **document number RCED-92-34**, or call (202) 512-6000.

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*This treatment device is for point of use (POU). For more information on different types of devices contact NSF International, Underwriters Laboratory, or the Water Quality Association See Appendix C for contact information.*

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