



## Water

### Information Sheet

#### Scientific Background

The EPA ranks drinking water pollution as one of the top five environmental threats to health. Public water from surface runoff does contain hazards to health such as heavy metals (like lead), volatile organic compounds (VOCs), pesticides, nitrates (from fertilizer), bacteria, viruses and parasites (cysts). Fluoride and chlorine are intentionally added, but have negative health effects.



Water quality standards are written around **allowable contamination** for a limited list of chemicals and are constantly being tightened. Specific biological contaminants are not tested for and are on the rise. According to the American Academy of Microbiology<sup>1</sup>, water quality is not assured. Though the water should be considered safe for healthy people, people with weakened immune systems, the young, and the elderly should be careful. *No one should drink unfiltered water.*

Reference: <http://www.epa.gov/safewater/dwh/index.html>

#### Discovery

*Contact your local water supplier for the annual water quality report (consumer confidence report).*



Comprehensive testing requires a lab and runs about \$150 [National Water testing lab – [www.ntllabs.com](http://www.ntllabs.com)]. We recommend comprehensive testing, including nitrates and coliform bacteria, of all well water, and this should be repeated annually. We also recommended basic testing of municipal water supplies to choose the right treatment equipment – Total Dissolved Solids (TDS), pH (acidity), total chlorine, radon, etc. [See other document about Radon issues.]

For existing filtration systems, inspect the filters both inside and out and test the water for TDS, pH, total chlorine, radon, etc., as appropriate.

#### Fixing the Problem



All drinking and cooking water should be purified to remove the six contamination groups. Before purchasing a home water treatment unit, consider local water quality, cost and maintenance of the unit, product performance and certifications to make sure that the unit will meet your needs. You can choose to use Point-of-Use or Point-of-Entry systems.

- Be aware there are no regulations for bottled water, so any water can be called “pure.” Bottled water treatments that protect against microbial contaminants are: reverse osmosis, distillation, ultraviolet light, or filtration with an absolute one-micron filter. Bottled water from well and spring water sources is less likely to be contaminated than from rivers and lakes.
- Distilled Water – removes all non-gas contaminants by boiling the water and then collecting the vapor
- Reverse Osmosis (RO) – removes all disease causing organisms and most chemical contaminants. For reverse osmosis systems, contaminant rejection should be about 92% to 97% depending on purifier condition and water pressure. The higher your water pressure, the better is the removal of contaminants. Forty psi is the minimum pressure for reliable operation. These use about 3 times the water they treat.
- Single and multi-stage carbon filters, some with lead removal, remove some contaminant groups, but not microbial contaminants unless specifically labeled ANSI/NSF Std 53 for “Cyst Removal” with an absolute (largest hole) rating of one micron.

<sup>1</sup> <http://www.asm.org/academy/index.asp>