N O R T H C A R O L I N A

nc department of health and human services

Well Water Treatment Options

For Inorganic Chemical Contaminants

There are many different methods for removing/reducing contaminants from your private drinking water supply. However, not all products may be effective in treating for all the necessary contaminants in your groundwater. It is important that you have your well tested and specific contaminants noted in order to properly choose the most effective means of treating your well water.

Type of Treatment Devices:

- Private water supply treatment devices fall into one of two categories: point of use systems and point of entry systems.
- Point of entry systems are generally best utilized for contaminants that affect the entire plumbing system or water throughout the house. These systems treat the water leaving your well prior to it entering the plumbing in your home.
- Point of use systems are best when used for removing a contaminant that affects your water's taste or causes a health concern when consumed or used for cooking and bathing. This category of treatment is installed at locations where water is being used for consumption, i.e. at your kitchen sink or in bathrooms.

Type of Treatment Technology:

- Filtration - captures particles as the water moves through filters.
- Ion Exchange - is a chemical process for removing dissolved ions from solution and replacing them with similarly charged ions.
- Distillation - distillation units boil water to make steam, which is then cooled (condensed) and collected in a separate tank. The contaminants remain behind in the original tank or are released in the air.
- Reverse Osmosis - contaminants are removed as the water is forced through a membrane with microscopically small holes.

Table 1. General Treatment Technologies for Home Treatment

Contaminant	Filtration	Ion Exchange	Distillation	Reverse Osmosis
Arsenic	X		X, Y	X
Barium		X	X, Y	X
Cadmium	X		X, Y	X
Chromium	X		X, Y	X, Y
Copper	X		X	X, Y
Fluoride			X	X
Iron		Y		
Lead	X, Z		X, Y, Z	X, Y, Z
Magnesium		Y		
Manganese		Y		
Mercury	X			
Nitrate/Nitrite		Z	Y, Z	X, Z
Selenium			X	X
Silver				
Sodium			X, Y	X, Y
Zinc	X			

X = NSF International, Contaminant Reduction Claims Guide - http://www.nsf.org/consumer-resources/what-is-nsf-certification/water-filters-treatment-certification/contaminant-reduction-claims-guide/

Y = Centers for Disease Control and Prevention (CDC), Drinking Water Treatment Technologies for Household Use (2008) - http://www.cdc.gov/healthywater/drinking/travel/household_water_treatment.html

Z = United States Environmental Protection Agency (USEPA), Water Health Series: Filtration Facts (2005) - http://www.epa.gov/ogwdw/faq/pdfs/fs_healthseries_filtration.pdf

Considerations:

- Which treatment option is optimal for a private well varies by location and circumstance. In some cases a public water supply may be optimal. In other instances, home treatment options may provide best coverage. Your local health department can assist you in choosing an option that works for you.

- Begin by calling 4-5 water treatment companies and show them a copy of your sample results and discuss what treatment options they provide based on the analysis of your well water.

- Look for consistency between companies as to what treatment systems they recommend and pricing of these systems.

- Attempt to get something in writing from the company you choose that states the system will work as described, and should it not remove the contaminants as promised, a refund will be issued or the system will be altered to ensure it is working correctly.

- After the system is installed, contact the county health department for testing the water before and after the filter system to make certain the filter system is working to remove the contaminant. DO NOT HAVE THE FILTER VENDOR DO THE WATER SAMPLING. Make certain the county health department takes the water sample and that it is analyzed by the State Laboratory of Public Health.

- Set up a maintenance agreement with the company in order to make sure the system is removing contaminants properly for years to come.