HOW TO SELECT
A Well-Water Treatment System
for YOUR HOME

1.

Test your well to determine what is in your well water.

Test your well with a certified lab. Contact the private well program at your county health department. They are your most reliable source for testing. Pricing of testing varies from county to county.

2.

Choose the appropriate treatment based on your lab report results.

The tables to the right show contaminants that may be found in your well water and shows which type of treatments can lower the amount found.

- Contaminants can fall into three categories (shown to the right):
  1. **Contaminants that can affect your health.**
  2. **Contaminants that can affect your health and can cause:**
     a. Aesthetic effects, like changing the taste, smell and look of water.
     b. Cosmetic effects, like changing skin and teeth color of user.
     c. Technical effects, like pipe corrosion and scale deposits in well.
  3. **Contaminants that can cause aesthetic, cosmetic or technical effect.**

As you go through these tables, here are things to consider:

- Filtration, ion exchange, distillation, reverse osmosis, and chlorination are common treatment types used to lower specific contaminants found in well water.
- Every system type does not treat everything. You may need multiple systems working together to lower the contaminants in your water.
- There are five types of filtration systems. Activate carbon, ultraviolet filter, oxidizing, neutralizing, and sediment filters are designed to remove specific contaminants.
- There are two types of ion exchange systems. A cation exchange system, also known as a water softener, removes positively-charged contaminants. An anion exchange system removes negatively-charged contaminants.

1. Contaminants that can affect your health.

Contaminant	Filtration	Ion Exchange	Distillation	Reverse Osmosis	Chlorination
Arsenic	Activated Carbon		✓	✓	
Barium		Cation Exchange	✓	✓	
Cadmium	Activated Carbon		✓	✓	
Chromium	Activated Carbon	Anion Exchange	✓	✓	
Lead	Activated Carbon		✓	✓	
Mercury	Activated Carbon				
Nitrate/Nitrite		Anion Exchange	✓	✓	
Selenium		Anion Exchange	✓	✓	
E. Coli	Ultraviolet		✓	✓	✓
Total Coliform	Ultraviolet		✓	✓	✓
VOCs/Pesticides	Activated Carbon			✓	

2. Contaminants that can affect your health and can cause aesthetic, cosmetic or technical effects in your well.

Contaminant	Filtration	Ion Exchange	Distillation	Reverse Osmosis	Chlorination
Copper	Activate Carbon	Cation Exchange	✓	✓	
Fluoride		Both	✓	✓	
Iron	Oxidizing	Cation Exchange			
Manganese	Oxidizing	Cation Exchange			
Silver		Cation Exchange	✓	✓	
Sodium			✓	✓	
Zinc	Activate Carbon				

3. Contaminants that can cause aesthetic, cosmetic or technical effects in your well.

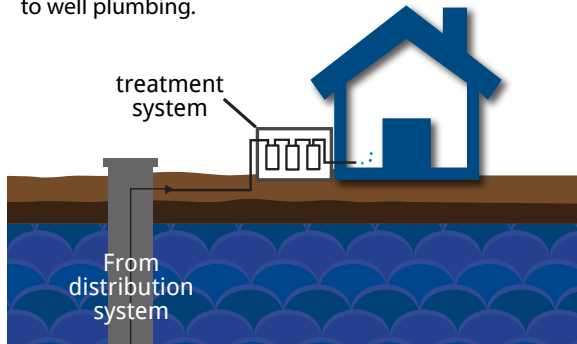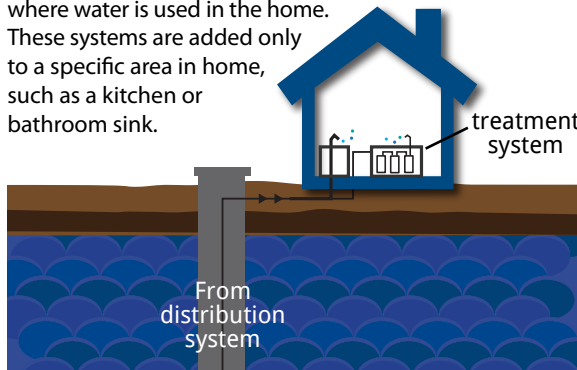| Contaminant	Filtration	Ion Exchange	Distillation	Reverse Osmosis	Chlorination
Calcium		Cation Exchange			
Chloride			✓	✓	
Magnesium		Cation Exchange			
pH	Neutralizing				
Sulfate					
Total Alkalinity	Neutralizing				
Total Hardness		Cation Exchange			
Turbidity/Sediment	Sediment			✓	

3. DETERMINE WHERE TO TREAT

Determine where to install your water system.

Water treatment systems can be installed at the point where the water enters your home or at the point where you use your water.

A. Point-of-entry Systems are installed where water enters the home to treat all water prior to entering your home. These systems are added directly to well plumbing.

treatment system

From distribution system

B. Point-of-use Systems are installed where water is used in the home. These systems are added only to a specific area in home, such as a kitchen or bathroom sink.

treatment system

From distribution system

Costs may range from $500 for a single point-of-use system to as much as $3,000 for a point-of-entry system.

4. TREATMENT INTERFERENCE

Consider treatment interference.

There are some interference contaminants that can impact the efficiency of the treatment system you selected.

Before you move forward with installation make sure you know the level of the following in your water.

- Total Hardness
- Iron
- pH
- Turbidity

You may need to install an additional treatment system to remove those interference contaminants. If two treatment systems are required to remove the contaminant from your water, consult with well-water treatment companies to determine the best course of action for your needs.

5. CONTACT CONTRACTOR FOR QUOTES

Get quotes from three different well-water treatment contractors.

Do your research and contact at least three water treatment companies or contractors about your installation.

6. LOOK AT THE FINE PRINT

Look at the fine print in your contract and understand your system.

Be sure to look at your contracts thoroughly. Make sure your well-water treatment contractor insures the lowering of the contaminants in your well to safe levels.

Be sure to speak with your contractor about the maintenance of your treatment system. Every treatment type has different upkeep factors with varying cost.

Maintenance requirements for each treatment type	
Treatment Type	**Maintenance Requirements**
Filtration	Resin must be periodically replenished
	Filters must be periodically changed or cleaned
	Periodic cleaning of system
	Water may need pretreatment prior to filtration
Ion Exchange	Resin must be periodically cleaned and replenished
	May increase sodium or potassium in well water
Distillation	System must be cleaned periodically
	High energy cost
	Hard water can impact efficiency
Reverse Osmosis	Requires storage tank for treated water
	Membrane and filters must be periodically changed
	Hard water can impact efficiency
	Water may need pretreatment prior to reverse osmosis
Chlorination	Monitor amount of chlorine

7. RETEST YOUR WELLWATER

After installation, retest.

Have your well water retested after treatment system installation to verify that the system is reducing the presence of specific contaminant to safe levels.

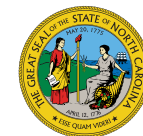## 8. MAINTAIN AND TEST SYSTEM

Maintain and test your treatment system.

Resources:

NC Division of Public Health's Private Well and Health Program: 919-707-5900

U.S. Environmental Protection Agency Find a Contaminant:

National Sanitation Foundation Contaminant Reduction Claims Guide

Water Quality Association: Common Contaminants

NC DEPARTMENT OF
HEALTH AND HUMAN SERVICES