



PRIVATE WELL WATER IN CONNECTICUT

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Publication # 19: Questions to Ask when Purchasing Water Treatment Equipment for Your Home

When shopping for water treatment equipment, be a good consumer and do your research. The State of Connecticut does not license home water treatment devices and some treatment installers may not have appropriate licenses for the work they are performing. Consumers need to be informed of treatment products that they install and be mindful of advertising claims that appear too good to be true. This publication provides questions you should ask before purchasing any water treatment equipment.



The first step in choosing a water treatment device is to have your water tested. Refer to [Publication #24: Private Well Testing](#) for information on what to test for. You may also want to contact your Local Health Department to determine if there are any known contaminants in your neighborhood. Be wary of “free” water testing offered by a water treatment company. It is better to rely on independent water tests conducted by a state certified laboratory to identify and evaluate specific contaminants.

If the water test indicates that you have a problem, installation of a treatment system may be necessary to remedy it. Be aware that installation of water treatment equipment requires attention to the following points:



- Determine what the specific maintenance needs are for the unit you are installing. You may need to contract with a knowledgeable individual or company to service your treatment unit(s) on a routine basis.
- Some whole house treatment systems may need to be periodically backwashed, which will require a means for treatment backwash wastewater disposal. Treatment backwash may be necessary to lift and clean the filter media of some treatment devices. This process may flush some unwanted contaminants from the treatment media and helps to restore the quality of the filter media.

Summary

The purchase of water treatment equipment is a decision that must be carefully considered. Whether the purchase is being made to improve the aesthetic characteristics of the water or to address health consideration, many factors must be determined. You may want to keep a logbook, allowing you to keep track of all maintenance and repairs on your treatment system.



Produced by The State of Connecticut Department of Public Health
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This Publication provides the following key points when selecting treatment equipment:

1. Correctly identify the problem to be addressed using appropriate tests performed by state certified laboratories. Also, inquire about the history of the groundwater in your neighborhood to help determine if any water quality problems exists. If so, test your private well water for these contaminants.
2. Identify treatment options for correcting the problem.
3. Decide whether whole house (point-of-entry) or single-tap (point-of-use) treatment is needed.
4. Determine if the system will treat enough water to meet your needs.
5. Select a reputable dealer.
6. Obtain second opinions.
7. Check to see if proposed equipment has been tested or validated by independent organizations such as NSF International.
8. Talk with others who have the same equipment you may purchase.
9. Be sure to know all the costs of the equipment: purchase price, installation, operating, and routine required maintenance.
10. Understand what maintenance will be required and who will be responsible for doing it.
11. Understand how to determine if the equipment is operating satisfactorily.
12. Determine the expected life of the equipment and components.
13. Understand any warranty provided with the equipment.

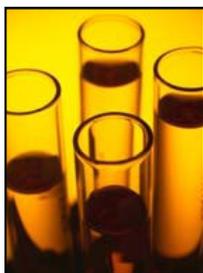


Important Questions to ask when selecting treatment equipment



When shopping for water treatment equipment, be a good consumer and do your research. The following are a list of questions you can ask a water treatment company, or the well contractor who installed the well, to determine the type of treatment system needed. Background information follows many of the below questions. The extent to which the water treatment company is willing and/or able to provide information or answers on the manufacturer or distributor of the treatment system they are proposing for your needs, can assist the consumer in making an informed choice.

1. What exactly does the water analysis performed by the water treatment company show? Are health hazards indicated? Should more testing be done?



Many water treatment companies include free in-home water testing as part of their services. Not all contaminants can be evaluated this way. For example, many man-made chemicals, which may be associated with serious health concerns, must be analyzed in a laboratory with sophisticated equipment. The consumer must be cautious of companies that claim their home analyses can determine results for parameters other than the basic water quality parameters such as pH, color, odor and turbidity. It is recommended that you verify any in-home testing with a water test conducted by a state certified laboratory. A listing of state certified laboratories can be downloaded from the Department of Public Health's [Environmental Laboratory Certification Program](#) website.

Once you've accurately determined what contaminants and characteristics your private well water has; the level detected will dictate if a treatment system is needed and which type of treatment system should be installed. Factors to consider include whether the water presents a health hazard and how the levels detected compare to Federal and/or State Drinking Water Quality Standards. Refer to the Publications available on the [Private Well Program website](#) and the [Action Level List for Private Wells](#) for more information regarding specific contaminants and/or characteristics that may be present in your private well water. You can also consult with your local health department and state health officials for assistance with reviewing water test results and their implications. Further information can be found in [Publication #24: Private Well Testing](#).

2. How long has the company been in business, and is there a list of referrals the consumer can contact?

Make sure the company is knowledgeable and has the appropriate license(s) for the work that is being done. Ask the company for referrals and contact the referrals to find out customer satisfaction. Talk to your local health department to see if they have had any experience, good or bad, with the company. Contact the [Connecticut Department of Consumer Protection Occupational & Professional Licensing Division](#) at (860) 713-6135 for more information on professional licenses.

3. Has the treatment system and the manufacturer been rated by the National Sanitation Foundation (NSF) International or other third party organization? Was the treatment system tested for the specific contaminant in question, and over the advertised life of the treatment device under household conditions (tap water, actual flow rates, and pressures)?

NSF, International is a non-profit organization whose function is to set performance standards for water treatment equipment and evaluate test results of the treatment device to determine if claims are accurate. Products that have been tested and certified by NSF and meet their minimum requirements are entitled to display the NSF listing mark on the products or in advertising literature for products. Manufacturers and models that meet the applicable standard are included in a listing published twice a year. NSF has developed standards for many types of treatment units. Ask the sales representative which standards the treatment system meets. For more information contact NSF at: 800-NSF-MARK or <http://www.nsf.org/>



4. Is a second opinion on treatment procedures and equipment necessary?

Consider a second opinion on recommended water treatment equipment. Check with at least one additional water treatment company to see what treatment procedure and equipment is recommended, and ask questions. Compare at least two manufacturers of the same type of treatment system and consult other references.

5. Does the water quality problem require whole-house treatment or will a single-tap device be adequate.

Depending on the type of contaminant and its concentration, you may need to treat all the water entering the house or only the water used for drinking and cooking. If the contaminant is only a problem when you drink it, such as lead, you may only need point-of-use (POU) treatment. POU treatment devices only treats water at one individual tap and are typically installed at the kitchen faucet to treat water for drinking and cooking.



However, if the contaminant is also hazardous when you get it on your skin or inhale it, (i.e. some volatile organic compounds or radon), or if the contaminant causes aesthetic problems with plumbing and fixtures (i.e., iron and manganese); you may need to treat all the water entering the house. Water treatment systems that treat all of the water supplying a home are referred to as point-of-entry (POE) or whole house treatment. POE treatment devices are typically installed in the basement or utility room after the water pressure tank. Many treatment units are available in both POU and POE models (whole house), including granular activated carbon filters, reverse osmosis, and microfiltration units.

6. Will the treatment system produce enough treated water daily to accommodate household usage?

The consumer must be certain that enough treated water will be produced for everyday use. For example, distillation treatment units produce 3-12 gallons of treated water daily depending on the model. In addition, the maximum flow rate of the treatment device should be sufficient for the peak home use rate. Consider installing a water meter to help determine what the peak flows and total daily water use are.

7. What are the total purchase price and expected maintenance costs of the device? Will the treatment company selling the device install it and service it? Will there be a fee for labor? Can the consumer perform maintenance tasks or must the technicians from the water treatment company be involved?



The consumer must watch for hidden costs such as separate installation fees, monthly maintenance fees, or equipment rental fees. Additionally, the disposal of waste materials, such as spent cartridges or media from activated carbon units and used filters, can add to the cost of water treatment and should be figured into the purchase price. You may be able to install some treatment devices on your own. Ask the dealer for all costs involved in the installation and maintenance of the treatment system.

8. What are the service intervals and the costs involved with this equipment?

Regardless of whether you or your water treatment dealer provides the service, there is always a cost. Filter cartridges must be changed, materials added as needed, and the water tested regularly to be sure things are working properly. Treatment equipment that is not serviced according to manufacturer recommendations may contribute to increased levels of some contaminants. Find out what supplies and equipment are needed, and the expected costs. Determine how often a filter membrane, ultraviolet light, or filter media will need to be changed and who is responsible for doing this. Ask the water treatment dealer if there are any other water quality conditions that will impact the effectiveness of the proposed treatment system you are considering to install. For example, iron and manganese may cause increased turbidity and suspended solids that can interfere with UV disinfection performance in an ultraviolet light treatment system.



9. Will the unit substantially increase electrical usage in the home?

The costs of treated water in the home will vary depending upon the cost of electricity and the amount of energy required to operate the treatment unit. Ask about the average monthly electrical use for the system you are interested in purchasing.

10. Is there an alarm or indicator light on the device to alert the consumer of a malfunction?

Many units have alarms or lights to let you know when the device is not working properly. Some units may have backup systems or shutoff valve functions to prevent consumption of untreated water. Be sure to discuss these options with the water treatment company proposing to install a treatment system in your home.

11. Will the manufacturer include follow-up water testing in the purchase price to ensure the equipment is working properly?



Testing the water a month after the equipment is installed and periodically thereafter will assure the homeowner that the unit is accomplishing the intended treatment. Have the follow up testing completed at a state certified laboratory. Locate a raw water sample tap or consider installing one. Collect a raw water sample periodically to compare the effectiveness of your treatment system. Water test results from the raw water tap will also help you to assess changes in your water quality.

12. What is the expected lifetime of the product? What is the length of the warranty period and what does the warranty cover?

Understand what the life expectancy is for the treatment devices you are purchasing. The warranty may cover only certain parts of a device. The consumer should be aware of the warranty conditions and any limitations.

13. What potential secondary effects will the treatment unit have on your water quality?

The consumer should be aware that some water treatment equipment works by adding something to your private well water to remedy the problem at hand. For example, some water softening units will replace the iron removed from the water with sodium or potassium.

Quick Reference to Water Treatment Devices

These guidelines are directed at individuals planning to consult with a water treatment company representative. It must be emphasized that treatment can be installed for resolving aesthetic problems as well as achieving a health based standard. If the private well water poses a health risk, the consumer should consider the cost of purchasing bottled water or tying into a public water system, if available, as an alternative to treatment.

<u>Device</u>	<u>Primary Use</u>	<u>Limitations</u>
<p>Activated Carbon Filter Refer to Publication #1: <i>Activated Carbon Treatment of Private Well Water Systems</i></p>	<p>Removes chlorine, Volatile Organic Compounds (VOCs), radon, some Synthetic Organic Compounds (SOCs), and general taste and odor problems.</p>	<ul style="list-style-type: none"> • Does not remove nitrate, bacteria or inorganic compounds. • Periodic replacement of activated charcoal required to prevent saturation of the charcoal and prevent bacteria buildup. • Depending on the contaminant(s) being removed, may require special hazardous waste handling and disposal, which can be costly. • Periodic backwashing and regeneration may be required.
<p>Reverse Osmosis Refer to Publication #21: <i>Reverse Osmosis Treatment of Private Well Water Systems</i></p>	<p>Removes more contaminants than any other treatment system except distillation; some organic chemicals (not volatile or semi volatile), pesticides, bacteria, viruses, uranium, arsenic and radium.</p>	<ul style="list-style-type: none"> • Does not remove all organic chemicals, such as chloroform. • Does not remove 100 percent of most chemicals. • Uses large amounts of water. • Not recommended for bacteria and dissolved gases.
<p>Ion Exchange Refer to Publication #10: <i>Ion Exchange Treatment of Private Well Water Systems</i></p>	<p><u>Cation Exchange Units</u> Removes positively charged ions, inorganic compounds, such as iron and manganese ions, chromium, radium and hard water minerals (e.g. calcium, magnesium).</p> <p><u>Anion Exchange Units</u> Removes negatively charged ions such as nitrates, bicarbonate, selenium, sulfate, arsenic and uranium.</p>	<ul style="list-style-type: none"> • Removal of one type of ion replaced with another, for example iron removed may be replaced with sodium. • Periodic backwashing and regeneration required.

<u>Device</u>	<u>Primary Use</u>	<u>Limitations</u>
Microfiltration Refer to Publication #14: Microfiltration Treatment of Private Well Water Systems	Removes small particles and suspended solids such as ferric iron, clay, silt and sand, and some pathogens such as bacteria and viruses and colloids (suspended matter)	<ul style="list-style-type: none"> Filter replacement based on concentration of contaminant and pressure head loss.
Distillation Refer to Publication #7: Distillation Treatment System for Private Well Water Systems	Removes dissolved minerals, trace amounts of metals, and some toxic organic chemicals.	<ul style="list-style-type: none"> Small capacity units produce limited quantity for drinking, cooking. Large units require kitchen or adjoining space or small diameter plastic plumbing can be run to the faucet location from a basement unit. Not effective against most volatile and semi-volatile chemicals and some bacteria. Might produce bland-tasting water.
Aeration Refer to Publication #2: Aeration Treatment of Private Well Water Systems	Dissolved gases like radon, carbon dioxide, methane, and hydrogen sulfide, as well as volatile organic compounds, like MTBE or industrial solvents. Aeration can be used for the precipitation and removal of dissolved iron and manganese.	<ul style="list-style-type: none"> If iron and manganese are present in solid form, pre-treatment of the water to remove these particles before entering the aeration treatment and post-treatment may be necessary. Waste air must be vented from the house in such a way as to prevent contamination of indoor air quality.
Ultraviolet Radiation Refer to Publication #25: Ultraviolet Radiation Treatment of Private Well Water Systems	Efficient at inactivating most bacteria, viruses, and other pathogenic microorganisms.	<ul style="list-style-type: none"> Not recommended if the untreated water contains high levels of total coliform bacteria, substantial color, turbidity and/or hardness. Does not improve the taste, odor, or clarity of water.

<u>Device</u>	<u>Primary Use</u>	<u>Limitations</u>
Ozone Refer to Publication #17: Ozone Treatment of Private Well Water Systems	Pathogenic (disease-causing) organisms including bacteria and viruses, phenols (aromatic organic compounds), some color, taste, and odor problems, iron and manganese, and turbidity.	<ul style="list-style-type: none"> • Not effective for large cysts and some other large organisms, inorganic chemicals, heavy metals
Activated Alumina	Used primarily for removing fluoride and arsenic.	<ul style="list-style-type: none"> • May require a post-treatment system for bacteria removal and pretreatment to oxidize “arsenite” to filterable “arsenate”.
Metal Oxide Filter Media (i.e. Iron Oxide, Manganese Dioxide, etc.)	Arsenic (trivalent and pentavalent). May be used to remove other contaminants <u>dependent on the media used</u> (i.e. some heavy metals; antimony, cadmium, chromate, lead, molybdenum, selenium, vanadium), iron and manganese. Can be used as POU or POE (whole house).	<ul style="list-style-type: none"> • Media must be replaced on a regular basis. • If treating for arsenic, water with iron, manganese, sulfate, silica or organic carbon will have reduced effectiveness.

For More Information:

For questions (i.e., testing, corrective action, treatment, options, etc.) please contact: CT DPH, [Private Well Program](#), **860-509-7296**.