

fresh clean Water

we've tapped a few sources for the skinny on our water and filtering systems

by thomas m. ciesla

A survey conducted and released in May 2001 by the Water Quality Association found that nine out of 10 Americans have serious concerns about the quality of their drinking water. In addition, almost half of the respondents (49 percent) believe that federal water quality standards should be stricter, and one in every three Americans (32 percent) believes that household drinking water isn't as safe as needed.

Closer to home, the City of Houston produces and delivers 145 billion gallons of water annually to residents and surrounding communities. In their Annual Water Quality Report for 2001, the city notes that while contaminants were found in our drinking water, none exceeded the EPA standards for maximum contaminant levels.

WHY TREAT YOUR WATER?

While only one-half of 1 percent of the water flowing through municipal water systems is consumed as drinking water, awareness of water quality is higher than ever. As we increasingly view the purity of water as an essential quality of life issue, more of us are taking personal responsibility for the quality of their water by installing water treatment systems in our homes as concerns of water quality arise. These concerns usually surface after noticing odor or cloudiness in the tap water, or stains on plumbing fixtures or washed clothing.

Source water contaminants range from salts, metals, viruses, bacteria, pesticides, herbicides and organic chemicals. Even after processing source water, the City of Houston's Annual Water Quality report lists the presence

of contaminants such as arsenic, barium, copper, ethylene, lead, nitrate and selenium. The report says these contaminants are within the EPA maximum allowances. Chlorine, a chemical commonly used to disinfect source water is also present in tap water.

However, "chlorine dissipates while traveling through the pipelines, so to meet regulated minimum levels, water utilities put ammonia into the water to stabilize the chlorine. These two chemicals then combine to form chloramines," says Bob Johnson of Bob Johnson and Associates Inc., a Houston firm with 30 years of water treatment experience ranging from residential to nuclear power plant applications. The effect of lifetime exposure to chlorine chloramines is currently under study.

TREATING YOUR WATER

Water treatment technologies fall into two general categories: water softening and water filtration. Each can be installed either as a point-of-entry solution to treat all water coming into a home, or as a point-of-use solution, such as a filter at the kitchen sink.

Water softening uses a sodium chloride solution to remove calcium and manganese ions that make our water "hard." Water filtering removes suspended particulates and chemicals and is often combined with water

softening to deliver clear, good tasting tap water. Activated carbon filters, either the granulated or solid type, are the most effective means of removing cloudiness, chemicals and other suspensions.

Bill McGraw of Quality Water Systems notes that in some areas around metro-Houston, especially where well water is the primary source, excessive sediment in the water

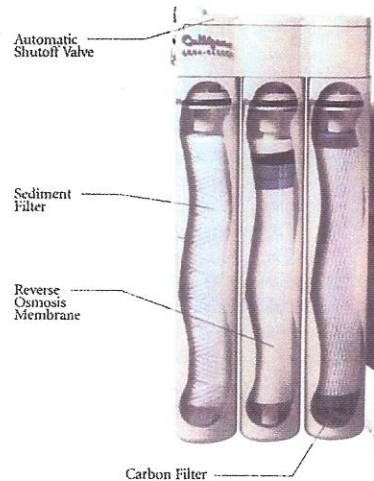
requires a multi-stage filtering approach to reduce wear and tear on just one filter system.

As McGraw explains, "Ninety-eight percent of our installations employ whole-house systems along with point-of-use systems, usually for drinking water and ice makers."

In the Houston area, manufacturers such as Culligan, Rainsoft and Eco offer a complete range of systems that can be



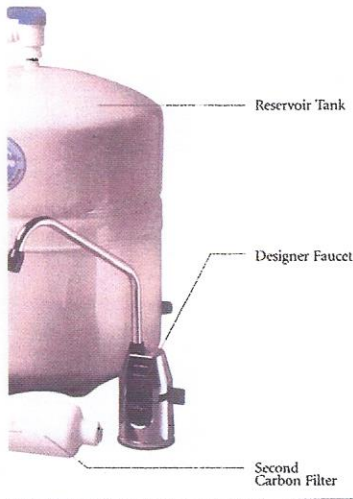
The primary component of Culligan's home water system is the reverse osmosis filter membrane. The process helps produce the purest water of all.



If a home's tap water is salty, bitter, cloudy or tastes bad, then it might be time to review water filter systems, like those at Culligan (www.culligan.com).

purchased through retailers such as Sears or from water treatment contractors for the more sophisticated systems.

A faucet-mounted water filter will cost around \$12 and give you some ability to filter out chlorine and suspensions. Small under sink filter units costing between \$90 to \$200 will have slightly larger filter cartridges capable of removing additional contaminants and will last a bit longer



before needing replacement cartridges that cost anywhere from \$9 to \$35. These filtering systems are designed to provide bottled-water quality drinking water.

Reverse Osmosis (RO) units work very similar to our kidneys and produce the purest water of all by using pressure to push water through a semi-permeable membrane that filter out almost all contaminants. These units, priced between \$300-\$700, are popular as under kitchen sink installations, providing drinking water at the sink and also feeding the refrigerator icemaker. RO does have some drawbacks that should be mentioned however: production is slow, averaging anywhere from 30- to 100 gallons in 24 hours, and the process is quite wasteful. Out of 100 gallons produced only 20 gallons are actually drinkable; the remaining 80 gallons go down the drain.

Point-of-entry water treatment systems are usually water-softening units combined with carbon filters, removing water hardness and contaminants such as sediment, chemicals and organics before the water enters the house. These units are also available from the retail or professional outlets and require a space about the size of an air conditioning condenser slab. Proper sizing is crucial

to a successful installation in order to satisfy local codes, assure proper water pressure and provide reasonable periods of time between backwashing and replacement of the filtering medium (sodium chloride crystals).

Point-of-entry systems cost anywhere from \$1,200 for smaller units, up to \$4,500 for larger, more sophisticated units. Whether you opt for a simple filter attached to your kitchen faucet or decide to install a sophisticated point-of-entry treatment system, maintenance is key to guaranteeing contaminant free water.

Granulated activated carbon does a remarkable job of filtering out impurities, but bacteria trapped for extended periods can actually multiply in the warm, oxygen-rich environment. It's important to follow manufacturer recommendations for changing these filters. Solid carbon filters are better at handling bacterial buildup since the solid surface traps the bacteria from penetrating through the carbon block. Reverse Osmosis systems require occasional cleaning and periodic changing of the membrane.

Water softeners require regular backwashing to refresh the salt solution and periodic changing of the salt matrix.

Fortunately, most manufacturers include indicators to alert you when a filter needs changing, and water softener systems now include LED readouts and automatic backwash capabilities.

Besides helping water taste better, other benefits of installing water treatment systems in your home include: removal of chemicals many feel are harmful to humans such as chlorine or fluoride, and numerous organic compounds allowable under EPA regulations.

Softer water lessens consumption of detergents, provides more luxurious shampoos, helps clothing last longer and prevents scale and stain build up on plumbing fixtures. When compared to bottled water, the cost of installing filtering and softening systems is quite affordable over the long term. Not only is bottled water the most expensive of these solutions, according to the Natural Resources Defense Council's Clean Water & Oceans: Drinking Water Report, the EPA standards for city tap water far exceeds the FDA's standards for bottled water.

Taking personal responsibility for your water quality will afford you the satisfaction and peace of mind in knowing that your water is truly healthier. ■

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