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# Home Water Testing

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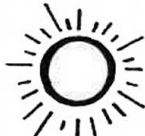
# Agricultural Engineering Update



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Home Water Testing  
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Routine testing for a few of the most common contaminants is highly recommended. Even if you currently have a safe, pure water supply, regular testing can be valuable because it establishes a record of water quality. This record can be helpful in solving any future problems and in obtaining compensation if someone damages your water supply. Testing needs to be performed by certified testing laboratory using USEPA methods of collection, storage and testing. Unbiased testing needs to be established and has more validity in court proceedings to establish responsibility.

## WHEN SHOULD YOU TEST YOUR WATER?

Whether you have a public or private water supply, you should have your water tested if the following situations arise:

If family members or house guests have recurrent incidents of gastrointestinal illness:

Test for coliform bacteria, nitrate and sulfate.

If household plumbing contains lead pipes, fittings, or solder joints:

Test for pH, corrosion index, lead, copper, cadmium and zinc.

If you are buying a home and wish to assess the safety and quality of the existing water supply:

Test for coliform bacteria, nitrate, lead, iron, hardness, pH, sulfate, total dissolved solids (TDS), corrosion index, TOC\* other parameters depending on proximity to potential sources of contamination.

If a water softener is needed to treat hard water:

Test for iron and manganese, which decrease the efficiency of cation exchange softeners, before purchase and installation.

If you wish to monitor the efficiency and performance of home water treatment equipment:

Test for the specific water problem being treated upon installation, at regular intervals after installation, and if water quality changes.

If water stains plumbing fixtures and laundry:

Test for iron, manganese and copper.

If water has an objectionable taste or smell:

Test for hydrogen sulfide, pH, corrosion index, copper, lead, iron, zinc, sodium, chloride and TDS.

If water appears cloudy, frothy, or colored:

Test for color, turbidity and detergents.

If pipes or plumbing shows signs of corrosion:

Test for corrosion index, pH, lead, iron, manganese, copper and zinc.

If water leaves scaly residues and soap scum, and decreases the cleaning action of soaps and detergents:

Test for hardness.

If water supply equipment (pump, chlorinators, etc.) wears rapidly:

Test for pH, corrosion index.

## **PRIVATE WATER SUPPLIES**

**Routine Tests.** The testing frequencies in this fact sheet are general guidelines. Test more often if you suspect there is a problem with the quality of your drinking water.

- Once each year test for coliform bacteria, nitrate, pH and TDS. It is best to test for these contaminants during the spring or summer following a rainy period.

\* - TOC - Total organic carbon is a screen test for presence of organic carbon which can then be followed up with more specific tests for organic compounds that are used in the vicinity of the water source.

These tests should also be conducted after repairing or replacing an old well or pipes, and after installing a new well or pump.

- Every 3 years test for sulfate, chloride, iron, manganese, lead, hardness, corrosion index and TOC.
- If a new baby is expected in the household it is a good idea to test for nitrate in the early months of a pregnancy, before bringing an infant home, and again during the first 6 months of the baby's life.

Special Situations. Where you live, or what you are living next to, can sometimes affect the quality of your well water. If someone in your family becomes ill, or the taste, odor or color of your water changes, your water supply may be contaminated.

If your well is in an area of intensive agricultural use:

Test for coliform bacteria, nitrate, pH, TDS and TOC.

If you live near a coal or other mining operation:

Test for iron, manganese, aluminum, pH, sulfates, corrosion index, and TDS.

If your well is near a gas or oil drilling operation:

Test for chloride, sodium, barium and strontium.

If your water smells like gasoline or fuel oil, and your well is located near an operational or abandoned gas station or buried fuel storage tanks:

Test for fuel components or volatile organic compounds (VOC's).

If your well is near a dump, junkyard, landfill, factory, or dry cleaning operation:

Test for volatile organic chemicals (such as gasoline components and cleaning solvents) pH, TDS, chloride, sulfate and metals.

If your well is near a road salt storage site, or a heavily salted roadway and you notice the water tastes salty or signs of corrosion appear on pipes:

Test for chloride, TDS and sodium.

## **DRINKING WATER STANDARDS**

Under the 1986 Safe Drinking Water Act Amendments the list of Primary Drinking Water Standards were increased. Table 1 lists the current standards and Table 2 lists the expanded contaminants that are under review for establishing maximum contaminant levels (MCL's).

**Table 1. Current Primary Standards for drinking water**

Contaminant	Maximum level (mg/L)
<b>Inorganics</b>	
Arsenic	0.05
Barium	1.00
Cadmium	0.01
Chromium	0.05
Fluoride	4.00
Lead	0.002
Mercury	0.002
Nitrate (as N)	10.00
Nitrate (as NO <sub>3</sub> )	45.00
Selenium	0.01
Silver	0.05
<b>Organics</b>	
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.10
Toxaphene	0.005
2,4-D	0.10
2,4,5-TP (Silvex)	0.01
Total Trihalomethanes	0.10
<b>Volatile Organic Chemicals</b>	
Benzene	0.005
Carbon Tetrachloride	0.005
Para-dichlorobenzene	0.075
1,2-dichloroethane	0.005
1,1-dichloroethylene	0.007
1,1,1-trichloroethane	0.2
Trichloroethylene	0.005
Vinyl Chloride	0.002
<b>Radionuclides</b>	
Radium 226 and 228	5 pCi/L.*
Gross Beta Particles	50 pCi/L
Gross Alpha Particles	15 pCi/L
<b>Microbiological</b>	
Total Coliform	1/100 ml†
Turbidity	1-5 turbidity units

\* Concentrations of radioactive elements are measured in picoCuries per liter (pCi/L).

† Coliform in 100 milliliter sample of water.

**Table 2. Contaminants to be Reviewed for Regulation\***

Microbiologic and Turbidity	Organics
<i>Giardia lamblia</i>	Acrylamide
<i>Legionella</i>	Adipates
Standard plate count	Alachlor
Total coliforms	Aldicarb
Turbidity	Atrazine
Viruses	Carbofuran
<b>Inorganics</b>	Chlordane
Aluminum	Dalapon
Antimony	Dibromomethane
Arsenic	Dibromochloropropane (DBCP)
Asbestos	1,2-Dichloropropane
Barium	Dinoseb
Beryllium	Diquat
Cadmium	2,4-D
Chromium	Endothall
Copper	Endrin *
Cyanide	Epichlorohydrin
Lead	Ethylene dibromide (EDB)
Mercury	Glyphosate
Molybdenum	Hexachlorocyclopentadiene
Nickel	Lindane
Nitrate	Methoxychlor
Selenium	PAH's
Silver	PCB's
Sodium	Pentachlorophenol
Sulfate	Phthalates
Thallium	Pichloram
Vanadium	Simazine
Zinc	2,3,7,8-TCDD (Dioxin)
<b>Volatile Organic Chemicals</b>	Toluene
Benzene	Toxaphene
Carbon tetrachloride	2,4,5-TP
Chlorobenzene	1,1,2-Trichloroethane
Dichlorobenzene(s)	Vydate
1,2-Dichloroethane	Xylene
1,1-Dichloroethylene	<b>Radionuclides</b>
cis-1,2-Dichloroethylene	Beta particle and photon radioactivity
trans-1,2-Dichloroethylene	Gross alpha particle activity
Methylene chloride	Radium 226 and 228
Tetrachloroethylene	Radon
Trichlorobenzene	Uranium
1,1,1-Trichloroethane	
Trichloroethylene	
Vinyl chloride	

\*Includes contaminants currently regulated.