

Potential Contamination Sources

Contamination Source	Recommended Test
Recurrent gastrointestinal illness.	Coliform bacteria.
Household plumbing contain lead, Corrosion of pipes.	Corrosion index and Lead & Copper First Draw.
Scaly residues, soap doesn't lather.	Chloride, hardness and sodium.
Water softener to treat hardness.	Iron, manganese.
Stained plumbing fixtures, laundry	Iron, manganese, sulfate.
Objectionable taste or smell.	Chloride, copper, hydrogen sulfide iron, manganese, pH, sulfate, total dissolved solids and Zinc.
Water is cloudy, frothy or colored.	pH and turbidity.
Rapid wear of water treatment equipment.	Corrosion index, iron and manganese.
Nearby areas of intensive agriculture.	Bacteria, nitrate and pesticides.
Nearby coal, other mining operations.	Regulated Metals Package, Secondary Metals Package, pH and Total Dissolved Solids.
Gasoline or fuel oil odor.	Volatile Organic Compounds.

For more information . . .

For more information about water quality testing for private well owners, including information on certified West Virginia drinking water laboratories, contact your local health department or the West Virginia Office of Laboratory Services; (304) 558-3530 for coliform bacteria sampling or (304) 965-2694 for chemistry sampling.

Office of Laboratory Services
<https://www.dhhr.wv.gov/ols>

Office of Environmental Health Services
<http://www.wvdhhr.org/phs/water/index.asp>

Local Health Departments
<http://www.dhhr.wv.gov/localhealth/pages/map.aspx>

Environmental Protection Agency
National Primary Drinking Water Regulations
<https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>



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South Charleston WV 25303
Phone (304) 558-3530
Fax (304) 558-2006

Environmental Chemistry Laboratory
 4710 Chimney Drive Suite G
 Charleston WV 25302
 Phone (304) 965-2694
 Fax (304) 965-2696

Kearneysville District Laboratory
 1948 Wiltshire Road Suite 7
 Kearneysville WV 25430
 Phone (304) 725-5832

West Virginia Department of
 Health and Human Resources

Bureau of Public Health

**DRINKING WATER
 FROM
 HOUSEHOLD WELLS**



**Office of Laboratory
 Services**

**Environmental
 Programs**

Water is important to everyone.

Almost 80% of the earth's surface is covered by water. Ninety-seven percent of the water on earth is salt water, containing salts and minerals, which humans cannot drink. It is too difficult and expensive to remove the salt. Two percent of the water on earth is glacier ice at the north and south poles. This is fresh water, but it is too far away from where people live to be usable. Less than one percent of all the water on earth is fresh water that we can actually use. Although this fresh water wears out, it can become contaminated.

Most people in our country receive their water from a public water system which is regulated under federal and state laws to produce water that provides protection to human health. But more than 15% of the American public obtain their water from household wells and springs. Unfortunately, there is no legislation that regulates these water sources, prior to consumption. Therefore it is imperative that each homeowner be aware of the risks their water may carry.

Potential sources of contamination

The actual presence of contaminants in your well will be affected by local geology and climate, your water system's construction, the extent of human activity in the area and your proximity to contamination sources.

Ask yourself these questions . . .

- Is there livestock nearby?
- Are pesticides being used on nearby agricultural cropland or nurseries?
- Do you use lawn fertilizers near a well?
- Is your well "downstream" from your neighbor's septic system?
- Is your well located near a road that is frequently salted or sprayed with deicers during the winter?

Five basic steps will help you determine and maintain the adequacy of your drinking water.

- Identify potential sources of contamination.
- Have your water tested periodically.
- Have the test results interpreted properly and explained clearly.
- Establish and implement a regular maintenance schedule for your well and keep accurate records.
- Remedy and problems, as necessary.

Testing your well water.

Contamination of a private well owner's ground water source is feared. Naturally occurring ground geology, industry, agriculture and human activity may cause pollution of a drinking water source. An initial set of tests that private well owners can use to evaluate some common issues and determine whether further testing is necessary includes: total coliform, regulated metals, secondary metals, and combined nitrate + nitrite. The table on the following page describes some potential contamination sources that may prompt an individual to test their water.

Additionally, At least once a year test for coliform bacteria, nitrate & sodium. It is best to test for these contaminants during the spring and summer following rainy periods. These test should also be conducted after repairing or replacing parts of the well.

Sample Collection

Water sample collection procedures vary depending on the contaminate being tested. The laboratory will provide sampling instructions and containers that have been specially prepared, depending on the end use (e.g., bacteria bottles are sterilized, metals containers are acid washed, glass vials used for volatiles are washed and oven-dried, and bottles used for synthetic organic compounds are washed and rinsed with organic solvents).

Treatment

There are two treatment systems available; point-of-entry and point-of-use. A Point-of-Entry system is typically installed after the well pump and treats all water entering the residence. A Point-of-Use system is installed at the kitchen and/or bathroom sink and treats only the water at these fixtures.

Laboratory Results

The Environmental Protection Agency has established a set of drinking water rules for public water systems amid at protecting individuals from short and long term exposure to potential health hazards identified in potable water. The Office of Laboratory Services analysis test report identifies the health hazard limits for each contaminant tested. The EPA health hazards can be viewed at; <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations> or you can contact the Office of Laboratory Services for a copy.