ENVIRONMENTAL HEALTH PROJECT
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Resources for Testing Residential Well Water

Knowing the quality of your groundwater is important for protecting your health. Your well water should be tested often to ensure that it is clean, especially if you are located near oil and gas development. However, knowing what to test for can be difficult and expensive. This list compiles a variety of in-home, user-friendly testing kits and devices. These can offer baseline measurements to monitor groundwater, so that abnormalities, such as potentially dangerous chemicals, can be detected and further testing can be performed. It is important to remember these devices should be used as a tool to get estimates of contaminant levels in your water, and therefore they cannot be used for regulatory or litigation purposes. If you need to have testing done for these purposes, you must use a Department of Environmental Protection certified laboratory. Please contact EHP if you need assistance finding a laboratory with these credentials.

It should be noted that there are many similar products on the market. EHP does not specifically endorse these companies or the products that they sell. Before purchasing any water testing kit, review the contaminants that the kit tests to determine its usefulness. You can compare this to the list of contaminants that EHP recommends testing for:

https://www.environmentalhealthproject.org/water

Conductivity

Measuring conductivity, or the ability of water to carry an electric current, can provide insight to the amount of salts and minerals in water. Drastic changes in the level of conductivity could indicate that groundwater has been contaminated by highly saline water, such as produced water from fracking. The tip below explains this in further detail.

To monitor this, use a conductivity meter to determine normal levels for conductivity in your groundwater. This will involve regular readings with the meter to determine what the conductivity of your groundwater is normally.* Fluctuations from this normal level may indicate contamination, and further testing can be done. For residents who live near certain types of shale development such as well pads, impoundments, or landfills, EHP recommends testing conductivity and pH weekly.

*Tip: Measure water in your toilet tank when the tank has refilled after flushing. Record these readings to establish your typical conductivity range If a conductivity reading is 200 units (us/cm) above this baseline, then further testing should be performed. It is important to note that a water softener or other additions will cause periodic spikes in conductivity. If pH can be measured at the same time, this will provide two parameters on which to base water quality. To do this, take a pH reading with a pH meter every time you measure conductivity. Observe and record any noticeable changes.

Sample conductivity meter:
Name: Water Quality Test Meter Pancellent TDS PH EC Temperature 4 in 1 Set
Tests for: Total dissolved solids (TDS), electrical conductivity, temperature, and pH meter
Price: $21

Similar devices can be found here: www.amazon.com/Conductivity-Meters-Accessories/b?ie=UTF8&node=5088417011

Metals and Inorganics

Testing well water for the presence of metals and inorganics is another important way to monitor contamination in your groundwater (examples of inorganic materials include nitrates and bromine). Testing for metals is much more difficult on an in-home scale, and the range of metals that can be tested is often limited. This is why EHP recommends that laboratory testing be done every 6 months. However, there are in-home test kits available too that can give measurements for a few metals, such as iron, lead, and copper. Levels of these metals can give an indication of water quality, but they are not a substitute for comprehensive testing. The contaminants that should be tested for can be found on EHP's website:

https://www.environmentalhealthproject.org/water

Sample metal and inorganic test kits:

Name: Water Test Strip Kit - 14 in 1, 14-Way for Drinking Water Quality, Way Water, Hard Water and Total Hardness, Water Softener Systems, Spas, Hot Tubs, Fish Tanks and Aquariums. Easy Professional Results
Tests for: 14 factors- including iron, copper, lead, nitrate, bromine, pH, alkalinity, and chlorine

Price: $19.95

Name: Complete Water Test Kit with TDS Meter**
Tests for: Pesticides, Bacteria/Coliform, Iron, Nitrates, Nitrites, Chlorine level, Copper, Alkalinity, pH, Water hardness, and TDS
Price: $44.95

**This kit comes with a total dissolved solids (TDS) meter, which is the amount of dissolved inorganic and organic material in water. The reading for TDS can provide a baseline measurement similar to electrical conductivity.

Similar test kits can be found here:
www.amazon.com/gp/search/ref=sr_gnr_aps?rh=i%3Aaps%2Ck%3Awell+water+metal+test+kits&keywords=well+water+metal+test+kits&ie=UTF8&qid=1530892894

Additional Resources

These websites can provide further information about how to monitor and maintain the quality of your well water:

US Environmental Protection Agency
www.epa.gov/privatewells

Pennsylvania Department of Environmental Protection
www.dep.pa.gov/citizens/my-water/privatewells/pages/default.aspx

Penn State University- Agricultural Sciences Department
agsci.psu.edu/aasl/water-testing/drinking-water-testing

Water Research Center
www.water-research.net/index.php/private-well-owner-outreach-program-in-pennsylvania

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