

What to do if water quality changes

If there is a change in water quality between the time of pre- and post-oil and gas development activities, the well owner should discuss it with the lab, or with local or state health, environmental protection, or natural resource authorities. If you have additional questions regarding the safety of the water for your use, you should contact a qualified public health official. Most constituents in water can be treated to safe levels by in-home systems. When considering a water treatment device, make sure its specifications match the substances and concentrations to be treated. You may want to check with the Water Quality Association at www.wqa.org and NSF International at www.nsf.org to determine if the treatment technology being considered has been performance tested.

Where can I get more information?

For more information on your private water well, contact your local water well system professional. Also visit NGWA's Web site at www.NGWA.org, and its site for well owners at www.WellOwner.org. For more information on regulation of oil and gas and water quality, contact the state oil and gas agency or the state environmental protection agency listed on the GWPC Web site at www.gwpc.org/state-agencies. Also visit the GWPC/IOGCC FracFocus Web site at www.fracfocus.org.



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This brochure is not intended nor should it be relied upon for legal advice. Consult with a local attorney regarding your state's particular laws and regulations.

Water Wells in Proximity to Oil and Gas Development: What You Need to Know

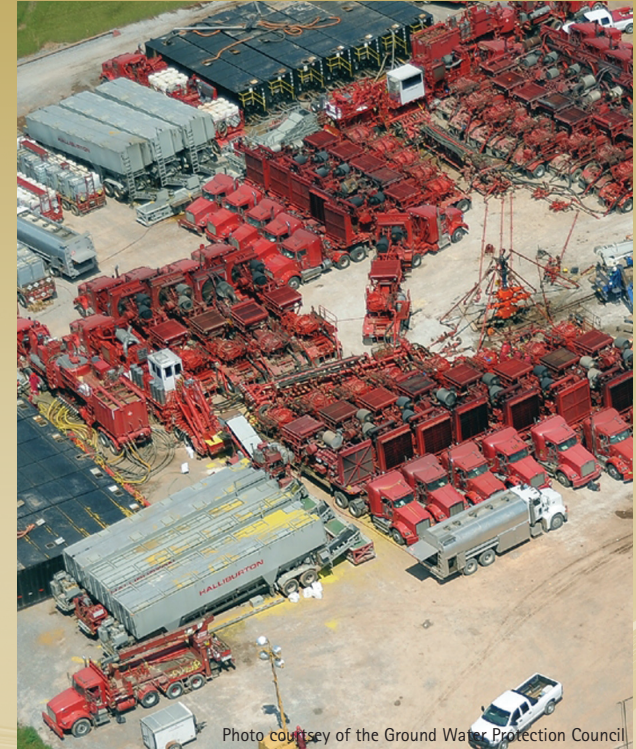


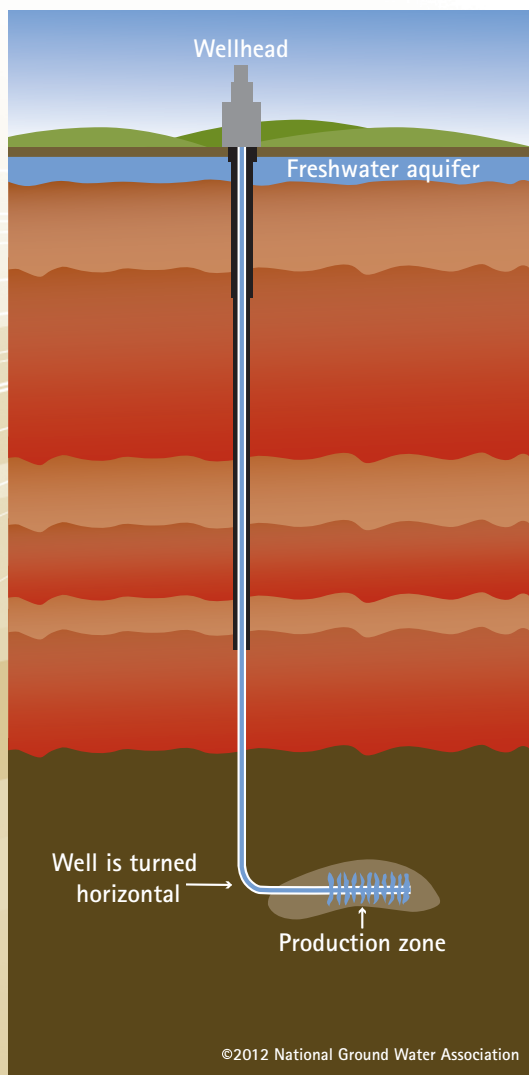
Photo courtesy of the Ground Water Protection Council

The National Ground Water Association (NGWA) and Ground Water Protection Council (GWPC) remind water well owners of the importance of testing the water quality in their water wells prior to oil and gas drilling and completion activities, including hydraulic fracturing. If you suspect a problem after oil and gas drilling activities take place, this predevelopment testing can provide a baseline for water quality comparison.



Suggested options for water well owners

If you own a water well in an area where oil and gas drilling and completion activities will soon take place, you should consider some special water-testing procedures (go to www.NGWA.org, click on the "Media Center" tab, then on "Information briefs"). This testing will be more expensive than the more common water quality tests, such as for bacteria and nitrates. However, in the rare case where regulatory or legal action is necessary, a comprehensive analysis is often needed.



Steps to take before and after drilling

Step 1: Prior to oil and gas drilling, the well owner should establish a baseline water quality. First, a water sample should be collected by a professional who knows proper sampling protocols. Then the professional—either an employee of a testing lab or some other qualified professional—delivers the sample to a laboratory certified to test drinking water using proper analytical methods.

Next, the lab tests the sample for appropriate constituents (see Step 2) to establish a baseline water quality. This approach, designed to ensure the integrity of testing, is referred to as third-party or chain-of-custody testing—each individual who handles the water is qualified to do so, is unbiased, and their handling of the sample is recorded on a chain-of-custody form.

A water well systems professional or county health department may be able to refer you to a certified drinking water testing lab. You also can locate a certified lab by contacting your state certification officer (water.epa.gov/scitech/drinkingwater/labcert/statecertification.cfm).

If local labs do not test for the substances you wish to check, there are national water testing labs that may be able to help, such as the National Testing Labs (www.ntllabs.com) and Underwriters Laboratories (www.ul.com).



Step 2: The following list from NGWA and GWPC is a general overview of the basic constituents that should be considered for water quality analysis before oil and gas operations begin. (Please note that you should check with the appropriate state agency to see if it has a specific list of suggested chemical, physical, or organic constituents to test for in your area.)

Major ions: alkalinity, calcium, chloride, magnesium, potassium, sodium, and sulfate

Minor and trace elements: arsenic, barium, boron, bromide, chromium, iron, manganese, selenium, and uranium

Water quality parameters: pH, specific conductance, total dissolved solids (TDS), and turbidity

Organic chemicals: benzene, toluene, ethyl benzene, xylene (BTEX); diesel range organics (DRO); dissolved methane; gasoline range organics (GRO); total petroleum hydrocarbons or oil and grease (HEM). When testing for the presence of dissolved methane, multiple analyses conducted over time may be needed to properly establish a baseline.

Step 3: Once drilling and completion activities have taken place, water well owners should consider retesting their water quality and, if hydraulic fracturing was used, comparing the results to any hydraulic fracturing fluid chemicals that have been disclosed by the operator for wells nearby. Some companies engaged in hydraulic fracturing may have voluntarily disclosed the chemicals used to the GWPC and the Interstate Oil and Gas Compact Commission (IOGCC). Such voluntarily disclosed information is made available at www.fracfocus.org under the Find a Well tab. Post-drilling water quality testing should be done within six months of completion of drilling and hydraulic fracturing. Continued sampling should be done at least annually as long as practicable and necessary. Subsequent screening using the pH and specific conductance, or total dissolved solids measurements and dissolved methane, can be less expensive ways to see if changes have occurred. If there is a change in the concentration or occurrence of these constituents, further, more sophisticated water quality testing should be done.