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## **Protecting Private Water Supplies Near Gas Well Drilling in New York State**

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### **Introduction**

This information is provided as a public service by the Community Science Institute (CSI), a local nonprofit organization whose mission is to monitor and protect natural resources, particularly water. A more detailed information booklet is available at [http://www.communityscience.org/documents/Gas wells and water FAQ sheet - Documenting Contamination.pdf](http://www.communityscience.org/documents/Gas_wells_and_water_FAQ_sheet_-_Documenting_Contamination.pdf). CSI operates a certified water quality testing laboratory located near the Ithaca airport (address in letterhead) and certified by the New York State Department of Health – Environmental Laboratory Approval Program (NYSDOH-ELAP ID# 11790). We currently partner with a network of 50 volunteers to monitor water quality in Cayuga Lake and its tributary streams. The lab is certified to test drinking water samples from private wells.

**FAQ #1. Should I be worried about contamination of my water by a gas well?** Yes. There is solid evidence that gas wells have contaminated drinking water supplies in the past. While no systematic studies are available on the Marcellus Shale, experience with old-style vertical gas wells in Pennsylvania suggests there is roughly a 1% to 5% chance of contamination. Penn State Cooperative Extension recommends testing all wells, springs, ponds and streams within 1,000 feet of a traditional vertical gas well. Because horizontal well holes typically extend several thousand feet out from the drill pad, landowners further than 1,000 feet from the well head may also want to consider testing.

**FAQ #2. How can water on my property become contaminated by a gas well?** There are several ways contamination can occur. Some are related to carelessness and human error. Others are related to the extremely high pressures and large volumes of fluid used for hydraulic fracturing that can force fluids as well as natural gas to move in unexpected directions underground. There is also a possibility, remote but real, that the cement casing around the vertical part of the well hole will fail, allowing fluids and gas to escape.

**FAQ #3. What should I test my water for and what does it cost?** It's not possible to know in advance exactly which chemicals may get into your water. Contaminants could come from the drilling fluid; the hydraulic fracturing fluid; underground metals, radioactive materials, organic compounds and brine released by the drilling and fracturing processes; or a combination of these sources. Testing for all possible contaminants would cost thousands of dollars. Baseline testing is designed to provide



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evidence of contamination while minimizing expense. If evidence of contamination is found, follow-up tests can identify as many of the pollutants as possible. Each certified lab approaches baseline testing differently, and consumers decide which lab to use and what to test for. CSI structures baseline testing as follows: a) Tests performed by CSI lab in Ithaca: pH, alkalinity, total dissolved solids, chloride, conductivity, chemical oxygen demand, total suspended solids, turbidity, detergents, total hardness and calcium; and b) Tests subcontracted by CSI to three other certified labs: Metals (barium, iron, manganese, arsenic, strontium), volatile organic compounds (VOCs), gross alpha and beta radioactivity, and methane (natural gas). The total cost of baseline testing by CSI is \$623 including VOCs (\$498 without VOCs) plus time and mileage to collect water samples.

**FAQ #4. When should I test my water?** Water quality tends to be quite constant, notwithstanding small seasonal fluctuations. Thus, under federal environmental laws, state governments are required to monitor water for human impacts no more than about once every six years. Accordingly, CSI recommends baseline testing within about six years before a gas well is drilled; within six months after the well is completed; every two years for the 10- to 50 year life of the well pad or every time the well is hydraulically fractured again, whichever comes first; and every two years for ten years after the well is abandoned and plugged.

**FAQ #5. Where should I have my water tested?** Testing must be performed by a commercial lab that is certified by the New York State Department of Health – Environmental Laboratory Approval Program (NYSDOH-ELAP). Only test results from an ELAP-certified lab are admissible in legal proceedings involving gas wells in New York. Go to <http://www.wadsworth.org/labcert/elap/comm.html> for a list of certified labs.

**FAQ #6. Can I save money and collect water samples myself?** No, not if you want the test results to stand up in court. Samples must be collected by an unbiased third party who uses accepted procedures and verifies the chain of custody for the sample. Typically samples are collected by someone from the certified testing lab. Baseline testing is like taking out an insurance policy on your water. It's not cheap, but it will pay big dividends if your water is contaminated.

**FAQ #7. What happens if baseline testing indicates my water is contaminated?** CSI recommends contacting your town's water commissioner, your county health department, and the NYSDEC Division of Water in Albany. Inform them of the results of the baseline tests and request assistance in: a) Designing follow-up tests to identify all the contaminants in your water, b) Assessing the health risks and environmental risks caused by the contaminants, and c) Seeking financial compensation from the gas company. Unfortunately, once an underground aquifer is contaminated, it is all but impossible to clean it up. The best that can be done is to identify as many of the contaminants as possible and develop long-term strategies for managing and living with the risks.

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