

## **#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 wells 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 their water.

## **#2. How can water on my property become contaminated?**

There are several ways contamination by a gas well 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 or horizontal well hole will fail, allowing fluids and gas to escape.

## **#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 and radioactive materials 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 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, ammonia-nitrogen, chemical oxygen demand, total suspended solids, turbidity, detergents, total hardness and calcium (\$185); and b) Tests subcontracted by CSI to three other certified labs: Metals (barium, iron, manganese, arsenic), gross alpha and beta

radioactivity, and methane and ethane (\$242 including shipping and handling).

The total cost of baseline testing by CSI is \$427. In addition, CSI charges \$60 for collecting private water samples in Tompkins County. Volume discounts are available. See the CSI booklet mentioned in #8 for an explanation of baseline tests.

## **#4. When should I test my water?**

CSI recommends baseline testing two to twelve months before the well is drilled; within six months after the well is completed; every time the well is hydraulically fractured; every two years for the 20- to 30 year life of the well; and every two years for ten years after the well is abandoned and plugged.

## **#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 (ELAP). Only test results from an ELAP-certified lab are admissible in legal proceedings involving gas wells in New York. A list of certified labs is available at <http://www.wadsworth.org/labcert/elap/comm.html>. The CSI lab is listed under Tompkins County, ELAP ID #11790.

## **#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. In between baseline tests, property owners can monitor for contamination by collecting "unofficial" samples on their own and having them tested for several "red flag" indicators. See CSI booklet mentioned in #8 for details.

## **#7. What happens if baseline testing indicates my water is contaminated?**

CSI recommends contacting your town or village government, your county health department, and the NYState DEC 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.

## **#8. Where can I get more information?**

A more detailed information booklet titled "Documenting Water Contamination from Gas Wells in NY State" is available on the Community Science Institute website at [www.communityscience.org](http://www.communityscience.org).



**Community Science Institute**

[www.communityscience.org](http://www.communityscience.org)

284 Langmuir Lab/Box 1044 95 Brown Road  
Ithaca NY 14850 Voice/Fax 607 257 6606

Certified Water Testing  
NYSDOH-ELAP #11790  
EPA Lab Code NY01518

*Stephen Penningroth Executive Director*  
[lab@communityscience.org](mailto:lab@communityscience.org)

April, 2009

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

**By Stephen Penningroth, Ph.D.**  
**Executive Director**  
**Community Science Institute**

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. CSI operates the largest state-certified water quality testing laboratory in Tompkins County, located near the Ithaca airport. We currently partner with a network of 50 volunteers to monitor water quality in Cayuga Lake and its tributary streams. The CSI lab is certified to test drinking water samples from private wells.

