

EXECUTIVE SUMMARY

Well Water Contamination: EHP Ranking System and Monitoring Strategy*

EHP has developed a water quality ranking system and monitoring strategy that uses a novel approach to calculating safe limits for chemicals found in private drinking water. The ranking system challenges the assumptions used in federal standards for drinking water safety because it is more conservative in assessing risks of exposure to multiple pollutants. We believe it is wiser to lower the threshold of what is safe to drink when the potential for exposure to multiple pollutants is present. Some of the chemicals associated with natural gas drilling activity are known to be highly toxic while others remain untested, with unknown toxicity. Many of the chemical interactions that occur with multiple pollutants are poorly understood, and there is certainly an increased risk of toxicity and human health effects. In addition, the interference of pollutants with medications taken, while not well researched, has been documented and poses an additional threat to individuals who require medications for good health.

Private well water quality is not regulated in the United States, but it is threatened by potential contamination near natural gas extraction activity. Well owners are responsible for monitoring their water quality. This is a difficult challenge in regions of gas extraction activities. Industrial gas activity, if properly conducted, does not necessarily contaminate groundwater, but poorly managed drill sites, leaky well casings, leaky wastewater pits and accidental spills certainly impact the quality of surface and groundwater, which are the sources of private well water.

Our water quality monitoring strategy helps well owners stay alert to the quality of their water. EHP's strategy offers residents an inexpensive method of monitoring for changes in water pH and conductivity. If the results show a change in water quality, residents are advised to test for a targeted set of contaminants. Additionally, EHP recommends a baseline test (if one has not yet been done), targeted tests every six months, and the annual tests recommended by the PA Department of Environmental Protection.

EHP's water quality ranking and action system guides residents to take action when well water is threatened by contamination. When contaminants are found, our method of calculating whether water is safe to use will provide a *greater margin of safety* to everyone in the household. Federal and state standards are based on Maximum Contaminant Levels (MCL), Maximum Contaminant Level Goals (MCLG), and Secondary Maximum Contaminant Levels (SMCL). Our strategy, depending on the number of contaminants found, divides the federal MCL by 2, 4, or 10 to determine whether or not the water is drinkable. An explanation of National Drinking Water Standards is included in the report.

This strategy and our recommendations are based on the review of data collected from studies in Wyoming and Pennsylvania. We analyzed water tests taken from private wells near gas extraction activities and concluded that frequent measurements of pH and conductivity, in many but not all instances, can alert well owners to changes in water quality.

* Please visit our website for the full version of this report: www.environmentalhealthproject.org

We recommend the following:

- Keep a diary of changes in the environment related to natural gas extraction within three miles of your home. Include any changes in your water quality, changes in your health or the health of others in the household, including pets and farm animals.
- See a health provider if you have any health concerns.
- Monitor your water for pH and conductivity changes.
- Conduct targeted tests every six months or as indicated by your monitoring results.
- Follow our guidelines for determining the safety of your water if contaminants are found.
- Contact our office for support, referrals, or further information.

EHP provides support to anyone with concerns about health impacts related to natural gas drilling. Our nurse practitioner provides guidance and referrals pertaining to health concerns. Our outreach coordinator provides information and technical support on how to monitor and test well water, and how to minimize exposures in and around the home. EHP conducts medical training programs for health care providers. The office is open Tues-Fri from 8-4. EHP's nurse practitioner is available by appointment only. For more information, contact us at:

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