

## CHILDREN'S ENVIRONMENTAL HEALTH CENTER OF THE HUDSON VALLEY

PROTECTING CHILDREN AGAINST ENVIRONMENTAL THREATS

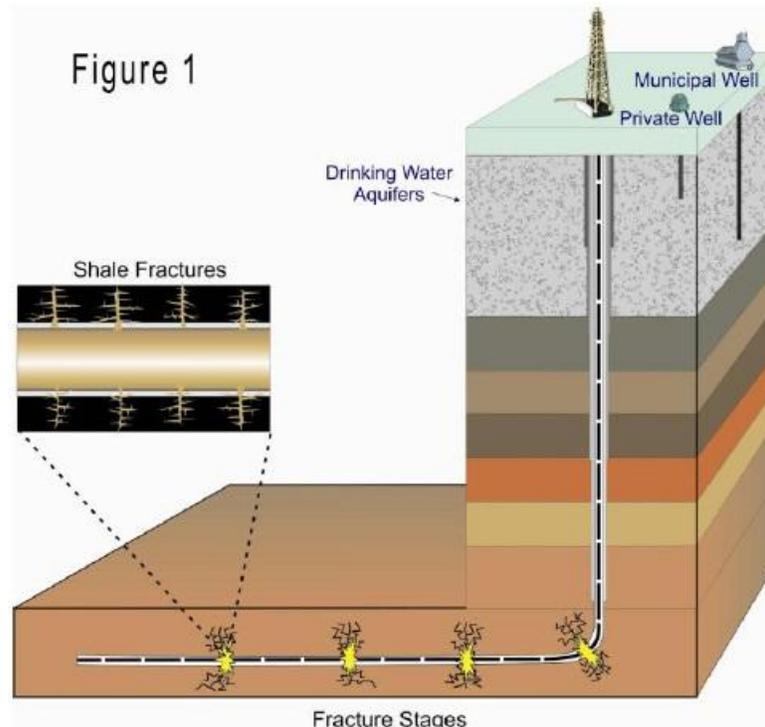
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FRACKING (HYDRAULIC FRACTURING) & CHILDREN'S HEALTH

**October 15, 2010:** Extracting oil and natural gas from the ground is a difficult and expensive process. For over fifty years, industry has been able to increase production by using a technique known as Hydraulic Fracturing, sometimes referred to as "hydrofracking" or "fracking" for short. A hydraulic fracture is created in rock formations deep below the earth's surface by pumping fracking fluid into an oil or natural gas well at sufficient rates to cause the underlying rock to fracture, making it easier for oil or natural gas to flow to the surface. Fracking fluid is a mix of chemicals and water. Although some of the components of the fluid pumped into the rock are known, the actual chemical composition of this fracking fluid is proprietary and not publicly available.

[Dr. Diane E. Heck](#), Chairman of the Department of Environmental Health Sciences at New York Medical College and a member of the Children's Environmental Health Center staff, explains: "The mixture of water and fracking fluid causes a massive underground explosion, cracking rock for miles and changing the paths underground water flows. This could result in contamination of wells and groundwater draining into public water supplies. In addition to common salts and plastics, potentially harmful substances have been identified in groundwater, such as naphthalene (a human carcinogen), toluene and xylene (agents that can alter brain functioning, and cause anemia and liver damage), toxic metals released by the explosions from underground deposits, and undisclosed antibiotics. There is real concern that this contamination of our water supply is caused by or aggravated by fracking."



**Frequently Asked Questions:****Why should we worry about fracking in the Hudson Valley**

One of the world's largest reserves of natural gas, in the form of shale gas, the Marcellus Shale, lies deep beneath us, spanning millions of acres stretching from West Virginia, through Pennsylvania and New York, including the Hudson Valley, to Lake Erie . Extracting this gas through hydrofracking may pose a significant threat to our water source, the Delaware River watershed, which provides drinking water for nearly 17 million people here in New York, as well as in New Jersey and Pennsylvania.

**Is our water supply contaminated from fracking?**

There have been no reports to date indicating that fracking fluid has been found in New York City water, and a temporary ban on the procedure is currently in effect in New York State . However, analysis suggests many other States have been affected. State regulators have found that natural gas drilling using fracking has not only contaminated drinking water, but also has polluted surface waters, air, and soil in three Eastern States (Pennsylvania, Virginia, West Virginia) and in other regions of the United States (Alabama, Colorado, New Mexico, and Wyoming).

**How does fracking lead to pollution of our water, air and soil?**

Much of the contamination appears to come from “flowback” of the water-chemical mix. After fracturing is completed, the internal pressure of the geologic formation causes the injected fracturing fluids, referred to as flowback, to rise to the surface where it may be stored in tanks or pits prior to disposal. Disposal options for flowback include discharge into surface water or underground injection. Air pollution with metals and organic chemicals brought to the surface may also be increased from this process, although this has not been carefully studied thus far.

**Why is our children's health particularly at risk?**

[Dr. Allen J. Dozor](#), Director of the Children's Environmental Health Center of the Hudson Valley, reminds us that as in many potential environmental hazards, infants and children are particularly susceptible to organic and metal contaminants in drinking water. “We know from decades of research that metals can have dramatic effects on impairing brain development. Not only is the brain rapidly growing in the fetus and young child, the ability of their bodies to handle exposures to toxicants is immature.”

**Are there any benefits from fracking?**

Energy independence for the United States is certainly an important national goal. The amount of gas produced by fracking is so significant that it has dramatically altered earlier projections of the natural gas reserves in the continental US. In a recent article, The New York Times reported that the shale discoveries in the Northeast United States, Louisiana, and Texas have doubled the discovered gas resources of North America and could provide 100 years of supply. There are also other uses for hydraulic fracturing that appear to be very valuable, including stimulating water wells, which can be very important in water-starved regions throughout the world. In fact, fracking can actually prove helpful in remediating subsurface waste spills.

**What are our government authorities doing about this?**

Many States are restricting the use of fracking, but the Energy Policy Act of 2005 exempted hydraulic fracturing from federal regulation under the Safe Drinking Water Act. As more information has become available over the last few years, environmental groups have urged Congress to repeal this regulatory exemption. There is proposed legislation before Congress, called the FRAC Act of 2009; that would eliminate the exemption and would require the disclosure of chemicals used in hydraulic fracturing. The US Environmental Protection Agency (EPA) has begun a two year study of the issue, and issued letters in September 2010 to nine natural gas drilling companies requesting cooperation in their study of hydraulic fracturing and its potential effects on drinking water and public health.

**Why has this become such an important issue in New York State?**

Increased production of natural gas from New York State could be enormously beneficial to the nation; and expansion of this industry could boost jobs and the economy of upstate New York. But environmental groups are concerned since fracking upstate could lead to contamination not only of local water, but possibly New York City water if this process occurred near the watershed around city water reservoirs. In September 2010, hundreds of concerned citizens attended EPA's public hearings on the topic in Binghamton, New York. As in many public health issues, there are many unknowns.

The question is whether there is a way to minimize environmental risks and still derive the benefits to society of this technology.

**What can I do to protect my children?**

Fracking is not currently occurring in New York State, but this could change. And of course, this is not the only potential risk to your drinking water. Therefore, if you use well water as your primary supply of drinking water, it is prudent to have the water tested for both metals and volatile organics on a regular basis. Both the Environmental Protection Agency (EPA) and the Centers for Disease Control and Prevention (CDC) recommend annual testing of private wells, and more frequently if there are specific local concerns. Your local health department can tell you if you should add tests for specific contaminants that have been found in your community. When visiting out-of-state rural areas, adhere to the advice of local health officials on water use or rely on bottled water.

**How can I get more information?**

In addition to TV, radio, and newspapers, there is a tremendous amount of information on the web, but web content is not always reliable. Information about the EPA's proposed study of the issue can be found on their website: <http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf>.

With office locations conveniently located in Westchester County and several other sites in the Hudson Valley, the [Children's Environmental Health Center of the Hudson Valley](#) provides clinical consultations for children and their families by appointment.

Visit [www.ChildrensEnvironment.org](http://www.ChildrensEnvironment.org) or call (914) 493-7585 for more information.